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Flight picture of a Wright Whirlwind Powered Stearman Biplane.

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Special Features

Italy to Brazil
With the National Air Tour
Airport Runway and Surface Treatments

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Room for twelve... and their baggage

Does it seem fanciful to suggest that trans-pacific operators will need planes capable of carrying twelve passengers and their baggage? Does it seem unlikely plans of this capacity can be filled? Listen to Mr. W. Irving Glover, Assistant Postmaster General, addressing the New York Traffic Club:

"How much longer... before someone is going to establish a passenger line to take the travel-weary passenger from the Pacific Stage all the way to the Twin Cities and deposit him with speed and safety at either Detroit or Cleveland?"

"How much longer in the business must go on to be satisfied with just one method of travel, by train, to that great city, St. Louis, from New York?"

"How much longer at the third station must go to be satisfied with spending twelve or sixteen hours of the week-end getting to the Maine Coast resort?"

"Thank it over, I say, how much longer is this condition going to exist? Not long, for the demands of the American traveling public will bring this new method of traveling into view."

And already the press announces the early, almost imminent fulfillment of one of Mr. Glover's prophecies.

So swift in aviation progress that it is folly to plan only for the needs known to exist right now—tomorrow they may be doubled. Twelve passengers! Does that seem too many? Ten years from quite likely you'll be wondering how you ever got along with planes that carried fewer.

The STOUT METAL AIRPLANE COMPANY
Detroit, Michigan

FORD MOTOR COMPANY
Dearborn, Michigan



Italy's Achievement

THREE BREAKING of the world endurance record and the extraordinary flight from Italy to South America by the Italians, Capt. Achille Peretti and Maj. Guido P. Delprato, are even more impressive than is evident at first sight. The Soviet Marchetti plane is no more an artless design in fact, it is almost a revolutionary departure from present day aircraft. The idea is in itself a most frank admission of the general failure and the times, quarters require only a slight deformation of wing. The tail is supported by booms, the lower members of which are directly struts attached to a boom for the stabilizer. The plane is the nearest approach to a "successful" "flying wing" which has yet been made. The power plant is of the popular type, with the engine set about the wing in a berth-like streamlined nacelle, an arrangement which allows the propeller to function in a practically undisturbed air flow. To have a plane of such startling originality of design break in so easy seems to the world's more important results is certainly a vindication of the principles adopted and seems to open up a new era in aeronautical development.

This after three planes, the Italians in the foremost place in regard to aeronautical entrepreneurship. The originality of conception of the Italian engineers, combined with the paternalistic methods of Italy's government, have brought about results which are little short of marvelous.

Nothing to Be Gained

A QUESTION that is being continually asked nowadays is, "What good are trans-oceanic flights?" The answer, as far as this magazine is concerned is that further flights are, on the whole, more beneficial than advantageous, particularly as if they are attempted in bad weather. The extraordinary volume of publicity afforded by successful flights will be easier than compensated by the loss of life and the inevitable, though slighted, reaction on the part of the public to be had, which will be far too dangerous to be indulged in by the majority.

On the whole, trans-oceanic flights have so far only confirmed what all the sensible people believe they were attempting. At the same time, however, it cannot be denied that the spread of this knowledge has been a great help to the industry. The public had learned that taking off with an overloaded plane is a dangerous undertaking. It has learned that our weather reporting system is far from being adequate and that there is a great need of a more elaborate system. It

has come to realize the great importance of radio as standard equipment on all long distance planes. It has learned lessons at the fact that flying in fog is extremely difficult, and the part that instruments play in enabling the most skilled of pilots to fly blind. It has also learned at the great need of real expert crews, both land and sea, equipped for the operation of heavily loaded transports packed tightly.

All these things and many more were known by persons closely associated with the industry before the beginning of trans-oceanic flying. However, it took the spectacular to drive home these lessons to the public and, if the truth must be known, to some of our most experienced pilots. Such being the case it seems that every flight that could be learned from future attempts with similar equipment has already been learned. The value of the publicity is to be realized will continue to decline, but the danger will remain the same.

In a year or so when trans-oceanic flying equipment has been improved, tested, and attempted it will be worth having. However, at present, trans-oceanic flights or even related world's longest land flights are not to be tolerated, and the leaders of such flights by themselves call to the attention of their willing to permit someone else to risk his life in order that their themselves may gain a little publicity.

Are They Worth While?

THE DAY when exhibition flights were the when they were still the same used to attract passengers to flying fields. At those fields, especially the smaller ones, parachute jumps are advertised at regular intervals so as to draw the crowd. At most of the fields where ballooning is well established, parachute jumping is discontinued if not actually prohibited, and there has been a considerable amount of talk about the Department of Commerce's extending its regulation to prevent such hazardous games.

The reason has been, however, that there deserves a considerable amount of discussion, for it would not seem fair to regulate out of existence a branch of aeronautics, which in times past has played a very important part in the industry, without going into the matter quite thoroughly. Penrhos, Alabama believes that such walking and other stunts is necessary with a flying field is not worth while, but that parachute jumping is trifling compared with said equipment when used while. We would, however, like to hear from others on the subject and would welcome letters from flying field operators and others.

Airport Runway and Surface Treatments

By N. H. ANGELL

THIS RECENT widespread interest in aviation has resulted in the construction of a great number of air ports all over the Pacific Coast. In most instances plots of ground have been set aside and designated as air ports and as yet little or nothing has been done to develop them to the point where any name other than that of an emergency landing field is justified. However, the start in the right direction has been made and the field can be gradually improved as funds are available.

The construction and proposed construction of these air ports has raised a number of problems in engineering and

permanent runway surfaces set back, but as the development of aircraft progressed with larger loads lifted and faster surfaces constructed, higher maximum flying speeds became the general rule. This meant longer and better runways in order to insure safe take-offs. In the case of trans-Atlantic transports during the past year special maps were constructed down which the planes would follow to give the initial impetus. Commander Read and crew in the heavily loaded "America" used such a map.

The old Naval base "Old Glory" used the same map, but much more time was added in order to increase its advantages. It was found that the use of the map was equivalent to adding 800 ft. to the length of the field, thus demonstrating that it is the effect of a long runway that deserved rather than actual linear dimensions.

Delayed take-off attempts, accidents and near accidents all due to poor conditions of runways are too numerous to need mention.

The prevention of soil compaction can be attained by paving runways upon which the planes can safely reach their required flying speed and still have extra space available, thus insuring a margin of safety and preventing adequate compensation for variations in load or in air conditions.

In the early days the suitability of a field for the operation of a given aircraft was largely determined by the length of the available runway. In the future it appears that the suitability of the runway will prove an increasing factor in

Photo showing off from solid runway surface at Tustin (Calif.) Airport. Note absence of dust. Photo by back-ground running over paved surface.

design, the adoption of which is vitally necessary to the development of the land into a first class airport. One of the highest priorities requirements in airport construction is the development of a suitable covering for the field, and particularly for the runways. The surface must be smooth, true to grade, as resistant as possible and free from loose gravel, dust, clay which would fly from the air winds of projectiles.

For the fields where development funds are limited, two alternatives are open. Either a permanent pavement can be started and the area increased as funds become available, or a temporary surface can be constructed over the field, as on the major runways.

If possible, a start with a combination of the two methods would be best, for this will be the greatest advantage. A permanent paving should be placed in end areas of the hangar areas and the spacious open approaches. The landing area and the runways can be given a temporary surfacing which will alleviate the dust nuisance and provide a safe flying surface in all weather.

There is no doubt in the mind of a hard surfaced permanent pavements. The realities of the advantages of a smooth surface over which the plane may be accelerated until the necessary flying speed is attained is well seen. The first successful flight of the Wright brothers was made by the aid of a crude catapult and a wood rail "runway". The adoption of wheels on aircraft seemed to give the use of



Another view of the solid surface at Tustin (Calif.) Airport. A comparatively light oil was used on the field and it was not dry.

determining the suitability of the field as a base for the take-off of a given plane.

In the ability of the runway to provide a surface area which the plane can accelerate to the necessary speed that will determine its worth. Length will still be a major consideration, but surface conditions will be given more attention.

The surface conditions make a notable difference as illustrated by the recent successful trans-Atlantic flights of the

"Europeans". In 1927 when preparations were under way for the take-off from Berlin, Germany, a paved runway was constructed. From this country the "Europeans", headed for what was to be a trans-Atlantic flight their total weight was 6,000 lbs., and at a distance of 800 to 1,000 ft. the paved runway proved superior during the take-off. The Belmont Field in Ireland gave the Indians terrific trouble by placing before taking off at 3000 ft., or practically double that required from a paved runway. This difference was at any rate

\$75,000 sq. ft. of firm rock asphalt concrete was laid between hangars, as aprons, runways and approaches. Despite the fact that the pavement was heavily laid under a thin fine crushed stone a 10 per cent slope and an additional 10 per cent camber was given to the surface. Although asphaltic concrete is one of the most durable materials for paved pavements, this factor is particularly important in an airport paving if hearings are to be made on the paved surfaces. The advisability of this will be discussed later. This is also off. It definitely insures that the plane will become to some extent just because of running, and such housing would have similar results upon a surface not capable of standing heavy impact. The ability of asphaltic concrete pavements to withstand impact without damage is well known.

The greatest value of this type of pavement is in its resistance to water and atmospheric factors. It is also suited to greater weight and other types of pavements. The asphaltic concrete for airport pavements is the greater part of the "traffic" to which it would be subject could be composed of a series of impacts. In addition to their effect on the pavements, such shocks have a very pronounced effect on planes and passengers, and very seriously by which they are reduced or eliminated, should they shock absorbers or shock absorbers or both should remove every consideration. Take its property of absorbing impact, the ability of asphaltic concrete to minimize rebound has been proved.

This is comparatively so it may readily be partaking with this type of pavement. It can be laid on any dry and well-drained soil. If a permanent paving surface does not exist, but only does it readily make the paved during the growing period, but it renders necessary the use of surface treatments. These are of low visibility from the air and pre-



Face of the solid runway surface at Kern County dry-weather Airport, Calif. The soil was laid with a road oil with 60 to 70 per cent asphalt and then dredged.

hers entirely due to a paved runway. At present writing no final data is not available to make a definite comparison, but the fact that asphalt is considered suitable to pave the runways, Doremus indicates that the difference in runways was an important factor.

If a heavy and safe airport can be obtained on the same plot of ground by surfacing runways and landing areas, such steps should receive immediate consideration from those responsible for the administration and maintenance of the flying field. Also, if paving an existing runway will decrease the distance the plane must travel before attaining flying speed, it follows that airports with paved runways could be somewhat smaller in size than those without well prepared surfaces. This fact may have an important bearing on the selection of a suitable plot of ground, especially if a great deal of ground is available.

The best form of paving for the runways must be determined by the results obtained over a period of years and will no doubt depend on a certain extent upon airplane design and adaptability. The growth of a marsh of turf over the landing fields and runways has been lessened and found fairly satisfactory in some localities, but at least such surface must keep to be dredged in wet weather. They tend to become rough and uneven under continued usage during the rainy season, but the most serious fault is that during the dry seasons of the West the expense for irrigation water and fuel required is so much as to be prohibitive, particularly, not considering the cost of the equipment required to maintain airports which are now subjected to only occasional usage.

The answer to the problem must be found in some sort of surfacing which will prevent an iron surface and which will be comparatively free from moisture and earth.

For a permanent surface asphaltic concrete of the same type used for highway construction offers many advantages. It is a hard surface which is very smooth, has a good drainage system, and does not settle, and is waterproof, thereby preventing water from soaking and softening the subgrade with resultant damage effect on the pavement.

An excellent example of the adaptability of asphaltic concrete for airport paving was furnished during the World



The solid runway surface at Kern County Airport about one week after using "good night" lighting visibility was very poor by pilots.

and a real hazard when placed on a field. The above advantages are applicable to utilities to starting pavement or patch work as well as to new pavements.

The visibility of the asphaltic pavements is excellent for both day and night flying. It is as good as any developed for the standard 100% asphaltic concrete and provides in the same manner the densest mixture of white or aggregate and cement concrete when new, but it remains as even dark color and stands up by reason of its uniformity.

Other types of pavements, being originally light in color, are hence blinding and dangerous, resulting in decreasing visibility. Light colored pavements render necessary the use of dark colored markings for glide paths, circle markers, etc. The Army Air Corps has definitely established the low

Continued on page 210

Increasing the Output to Decrease Costs

By ANDREW R. BOONE

EVERY MANUFACTURER attempts to increase his output, or to reduce his finds profit. And in increasing the production of planes we can also increase profits by using some tools on the orders placed for materials as quickly, logically, and in management of the new equipment. For example, if we can make one tool do two or three certain operations, certain tool requirements, certain wall thicknesses, this is made up on a special order. Or small production, where short is ordered for a small

or conserving on a single model, swaging, of course, on several orders for special jobs. There places are laid down to make 50 or 60 or a thousand, obviously, and it takes approximately 60 days from the time the order is written up to the place as ready for flight testing. The solution of problems, apparently, will be found in saving more places per work.

The Mahoney wing department recently started at the position where it has come to its task set out, namely, to make each working day, wherein the foreign department personnel are able to turn out but one completed fuselage each two and one-half working days. This is largely a problem of material, and is explained by W. O. Loeke, production manager, as follows:

"The fuselage assembly factory will be responsible for assembling, that started for planes the day we will progress to five weeks from the station point to the point where final assembly is done. Material for the fuselage will pass down one line and the line for turning along the fuselage progressing side to side through the departments. "The fuselage will come down to the wing department where they are joined together, through the wing department, where the fuselage is turned up, over the motor and depart-



Part of a section of the wing department of the B. F. Mahoney Aircraft Corp., San Diego, Calif.

number of fuselages, this certainly is not by degrees. Quantity causes would prevent reducing lagging, equipment to freight and decreasing of the bills.

Many airplane factories to date have been provided with rooms. It has been necessary that they stop by express, in order to get goods in time for delivery of the complete plane. Yet, the Mahoney plant now uses only from 10 to 12 per cent, by express, air mail and shipping, and the reason is, because, which is all affected, plane and subject to orders. Both steel and copper orders require from 30 to 80 days from the time the order is placed with the material, results the worker ready for use in a plane. The general public wonders why it takes so long to build an airplane, and the partly explains the reason.

The foregoing ideas came to the writer from W. G. Loeke, production manager of the B. F. Mahoney Aircraft Corp., in San Diego. Both Mahoney and Loeke from the application of something like in Ford production plants and methods to assembly, at which time something resembling industrial plants will return to the producers. At the same time the user will be supplied a standardized product with certain advantages.

All the Mahoney plant, for instance, seems to have been set



The metal forming department of the Mahoney Company. In machines are machines which are operated by one man.

out, then to the painting department, to the wind department where the fairing is done, to the updriving department, then the wing department and finally the dope room where it will rest until the wing is placed on to assembly.

"The wing goes through a similar process, first the manufacture of the spars, the ribs, assembling of the ribs and spars, next the fitting of the wings, then the bracing, then the engine department which will be opposite the entering de-

Continued on page 268

Reducing Loss and Damage in the Airplane Factory

By WILLIS PARKER

SEVERAL HUNDRED dollars a month are saved by the Alexander Aircraft Co. by the adoption of a system whereby the machine shop makes out a report to cover all materials as tools lost or broken.

The system serves several purposes. In the first place it has been found that the cost of repairing tools is increased by the removal of parts in the construction of airplanes, by increasing the efficiency of the employees. Another purpose is to determine the adaptability of certain tools to various kinds of work, for it is obvious that the wrong tool is likely to be broken or to damage a piece of work. A third accomplishment is that of salvaging some tools and materials that have been broken.

"We have adopted this system," explained C. C. Harrolday, factory superintendent, "because some extremely expensive, especially with tools tools used as such. If they broke drill points or lost them, they thought it was of no consequence and immediately replaced another. Of course a drill point doesn't ever break, but when they are being broken day after day they work after each other, they can't be replaced."

"Owing to the fact that we are in the middle of the business, the tendency is to replace the right tool for the work, or not place the right one here. It was the custom to throw the broken part out a corner or out of the window and get another. Now the worker must bring the part

out a detailed report at the time, we may be able to better improve the finished tool or get better raw material to eliminate the waste time lossage."

"The loss and spending reports must be so detailed. We have provided forms of space on the sheet for the employee



A side view of an Alexander "Empress" powered with an oil & gas engine.

write an essay on the subject of his wants to, and the more detailed the report is, the better it is for us." The report comes in two parts and is somewhat in the form of a questionnaire, for the first has reads—"Please furnish me with the following material or tools". It is segmented on one, less the materials are taken from the stock room. When I inspection additional stock from the stock room, I must attach these reports to my requisitions and they eventually reach the desk of D. B. Alexander, chief engineer of the company.

No Faulty Anchored to Breakage

LOSS AND DAMAGE REPORT	
Loss	Gain
Machine tools	
Raw materials	
Waste	
Other	

to the office, make out a report concerning the cause of breakage, and that report must accompany the requisition for a new tool. It frequently happens that we can salvage a broken part. If it was a long drift that broke, we can cut it to the standard size when it can be sharpened and put onto stock for use in other departments where similar drifts are required.

"By studying these reports we have found that certain types of tools are not the best for the kind of work they are intended to do. Hence we discard them and seek something else, even if it means making the tool ourselves."

"The same thing holds true with materials, either you or someone else who is using them is not doing a good job in causing the loss or the source of time."

"We don't want any penalty to breaking or losing

that would tend to distract any man's mind. If a worker loses he would be pleased for breaking a tool, he wouldn't expect to be held responsible for it.

"It is a bad idea to hold a man responsible for breaking a tool, because the man who is making any web by hand, or by machine, is constantly doing due to his own care and trouble. Also, he would think that the material he was working with and tools was appreciated by someone else."

"We do watch the boys in regard to carelessness, and when we find that a man is really too careless, we figure that, unless he improves forthwith, we will have to replace him with a better man. The result of carelessness, however, gives us an opportunity to give the worker a severe talking to, and that sometimes does in good work by convincing a potential

"When you stop to consider that we have had as high as 650 tools of knowledge due to carelessness in a day, it is obvious that obtaining reports on the reasons why we help in reduce the loss or the source of time."

Italy to Brazil

Major Delprete and Captain Ferraria Pilot Savoia-Marchetti Plane 4475 Mi. and Set New World's Distance Record

THE FLIGHT from Rome to Brazil of the Savoia-Marchetti S-61, made last night by Capt. Armando Delprete and Maj. Carlo P. Ferraria, established a new record for the nonstop flight, surpassing that of Chanteloup and Lavielle by more than 500 mi. The four took off at 11:45 A.M. on June 21, 2:35 P.M., July 3, and landed on the beach 20 mi north of Rio de Janeiro, at 8:38 P.M. (New York time) July 3, covering a distance of approximately 4475 mi. in 31 hr. The course took them across the Mediterranean Sea, through the Straits of Gibraltar and then southeast over the Atlantic Ocean, via the Cape Verde Islands. They are also former holders of the world's endurance record of 45 hr. 21 min. 26 sec. in the race.

During the entire flight the aviators kept their plane constantly on its course and they even slept in small cots long before they were required. On the first leg of the journey they had to fly at 10,000 ft. as an average speed of 100 m.p.h. due to favorable winds. On the last leg however the current was so strong against the wind that they had difficulty in maintaining their bearings after reaching the coast of Brazil. That

brought disappointment to thousands of persons who awaited them there. Crowds gathered about the buildings soon after the arrival, awaiting every bit of information that came from the aviators and awaiting the arrival of the famous. Extra care preparations were made to receive them at Alfonso Airport, where lights were ordered to stand by the event they should ar-



Front quarter view of the Savoia-Marchetti S-61 aircraft with a 300 hp Fiat A-7 engine, shown after dark. An intense public interest in the flight to Brazil that newspaper prints special editions and the wires strung between.

The flight marks the first direct crossing of the South Atlantic Ocean from the European continent to the mainland of South America. The South Atlantic has been crossed however from the mainland of Africa to the mainland of South America by the French ships, *Cousteau* and *L'Officier*.

Designed by Alessandro Marchetti

The Savoia-Marchetti S-61 was designed by Alessandro Marchetti and built by the Savoia Aviazione Aerea Italia in Santa Cesarea di Milles, Italy. The first flight was made April 30 of this year. The greatest design problem was the propeller, which was designed by Major Giovanni Scattolon, the most famous of which was the Savoia Marchetti which General Gatti Paolo Vittor crossed the Atlantic. The engine mounting of first place resembles that of the Marchetti flying boat which was entered in the 1925 Schneider Cup Race but in the S-61 the engine drives a pusher propeller. The engine mounting and the rigging of the tail as a beam allows of an almost perfect fair air around the wing and it is evident that the designers have appreciated as closely as possible the ideal of a "wing in tip" type of plane.

The wing has a span of about 60 ft. and is of the thick wing plan camber type. It is built of wood and divided into many water tight compartments. The gasoline is stored in 25 gasoline tanks within the wings. These tanks feed into a main tank and are so interconnected that various groups of tanks can be used at the pilot's discretion. An auxiliary system can be switched on in case of failure of the primary circuit. The gasoline is pumped directly from

the tank right over head and returned to the landing gear. Both tanks heat and forty-five minutes later they landed 30 mi. north of Rio at Ponte Grapébia. Like the Bertrand-Jousselin-Méchin they experienced their greatest difficulty after reaching the coast. After a stop of one hour and twenty minutes at the beach the plane took off again for Rio de Janeiro.

Failure of the engines to land first at Rio de Janeiro



Close-up front view of the Savoia-Marchetti S-61 showing engine, cockpit, and landing gear.

Ristici and Zimmermann, German Junkers Pilots, Take Endurance Record from Italy

WITH THE flight of Julian Ristici and Hans Zimmermann, German Junkers pilots, the world's endurance record goes back to Germany. The plane landed at 9:30 P.M. July 5, at Dusseldorf Flying Field after remaining undisturbed in the sun for 65 hr. and 11 min., surpassing the record held by Capt. Arthur Ferrara and Maj. Carlo P. Del Prete, Ferraria down, who made the first endurance record to Germany in August 1927 in the Europa, a plane of similar design, creating the纪录 from Charles Chanteloup and Bert Edwards.

Although the former time was bettered by 1 hr., the aviators saw down not because of lack of fuel but because they started a flight heading on a field not properly marked. Im-



Julian Ristici (right) conferring with Charles Edward in front of the Junkers plane in which they flew set a 65 hr endurance record last August.

mediately after descending the plane was surrounded by Prof. Hugo Junkers, designer of the plane, who had just returned from this country and were served to share on the shoulders of members of the crowd of ten thousand persons who received them at the field.

The direct trip of July 5 at 8:34 A.M. with 358 gal. of gasoline. It was estimated that the fuel consumption would be 12.5 gal. per hour and reversible propellers cut this down to 10.5 gal. per hour leaving fifty two gallons remaining in the tanks at the termination of the flight. The favorable weather however did not continue during the entire flight and a heavy electrical storm and cloudiness Friday threatened to interfere seriously with the establishment of the new record. The storms ended Friday night and fair weather favored the pilots from then until they landed. The plane was ready to the minute.

The old record was officially broken at 3:48 P.M. Zimmerman and the Junkers Co. that created a large clock on the field informing the fans of this occasion. They did not dream however but dropped a note stating that the record was breaking privately and that they wished to remain silent until nightfall.

Since less fuel was used the consumption was 10.5 gal. per hour. The new record was 65 hr. 11 min. 30 sec. The record was established at 10:35 P.M. and lasted until the return trip at 4 o'clock, thus making less time seen from Cape Cod to complete the record.

of Austria-Hungary from Switzerland to Hungary on their first attempt to repair the Hungarian Army. The royal aides arrived at the aerodrome October 21, 1926, took off unnoted and landed in Hungary after a stormy voyage during which Zimmerman was almost forced to land in Russia.

Third Consecutive Balloon Race Victory

Gives James Gordon Bennett Trophy to U.S.

THE WINNER of the James Gordon Bennett Balloon Race by Capt. W. E. Kepner gave the United States permanent possession of the trophy, this being the third consecutive victory won by this country in the classic. Captain Kepner, who piloted the U.S. Army entry, landed July 5, at Koenigberg, Germany, covering a distance of 456.9 mi. The German balloon, piloted by Hugo Kastell, took second place with a distance of 450.6 mi. landing at Chese Cog, Y., and the French entry, piloted by Capt. Charles Delteil, came third with a distance of 417.9 mi. in total.

The twelve contestants went aloft June 30 at Detroit and were hindered in their progress by low pressure and cold winds. The adverse weather conditions prevented any of the aviators from covering a very great distance and the leading contestants were considerably behind their year round record of 500 mi.

Four of the balloons came down in West Virginia making unnecessary territory. These were the Detroit, piloted by William G. Kepke, who descended at Cane, W. Va.; the



Sage pilot at the Port Airport for the start. Brigitte entry, piloted by Joseph Thomsen, at Newark, W. Va.; the Cope long, piloted by Otto Bertram, at Newark, W. Va., and the Swiss balloon, piloted by E. & M. Meier of Fribourg, W.

The other entries were the Denevek balloon, piloted by E. A. U. Rasmussen, who landed at Newark, Va.; the Akers entry, piloted by A. C. Palmer, who also landed at Newark, Va.; the Argentine entry, piloted by Maurice Bradley, at Milford, Va.; the French balloon, abandoned, and the German entry, Montrouge.

Cape Cod Business Men Can Now Commute By Plane Between Their Homes and Boston

REGULAR AIRLINES passenger service was inaugurated yesterday between Hyannis, Mass., and Boston. A plane leaves the newly completed Hyannis Airport at Cape Cod daily at 7:35 A.M. and arrives Boston on the return trip at 6 o'clock, thus enabling business men from Cape Cod to commute by airplane.

National Organisation Formed to Found Aviation Country Clubs in Leading Cities

A NATION-WIDE organization for the formation of flying clubs in the principal cities of the United States has been organized by the operators of the largest flying clubs in the country. The organization was founded at 88 Fifth Avenue, New York City. The Board of Governors include William A. Hochfelder; Charles Lowrance, president of Wright Aeromarine Corp.; Sherman M. Fairchild, president of the Fairchild Aviation Corp.; Robert Love, Jr.; George Peet, president of Free Bottom Credit; Earl D. Odarsky, publisher of Aviator Magazine; and James E. Taylor, vice-president of Air Associates.

President is the Organization Committee in Ruth Bostwick Nichols, Junior League member and holder of F.A.I. Hydro-aeroplane No. 807 and Department of Commerce Transport Pilot's License No. 386. Associated with Miss Nichols on the committee are George Adams and John S. Keeler. Miss Nichols is director of her organization, which is to be known as the National Federation of Flying Clubs. She has selected a group of flyers from her home state of New Jersey, who will make the first cross-country flight by air between New York and Miami, and she is very active in this movement to advance aviation in America.

National Membership Committee Appointed

At the first meeting of the Board of Governors the National Membership Committee was elected, including Estelle Mawrville, president New York society girls; Pythons; and Wanda Hale Hartmann. The membership already includes George Lowrance, president of the Leesburg Aeromarine Corp.; Robert V. Jolley of Spruce Gyroplane Co.; George Townend, president of the Moto Master Co.; Norton Conover, and E. G. Franklin.

The State Committee is now at work choosing suitable locations for the first seven Aviation Country Clubs. One is to be located in Worcester, one on Long Island, and one in New Jersey. These clubs will include flying fields with proper runway arrangements and markers, and the equipment will consist of hangars, machine shops, general field equipment, and a number of airplanes. The flying fields and the hangars will be of modern design and appearance. The style of architecture is modernistic, and the buildings are to be constructed so that on each they resemble an airplane. Pavilions are being made for a large lounge room, ladies' room, and a small quiet room for the ground floor; changing quarters, a grill, men's dressing room, and another large lounge for ladies on the second floor.

Flying Clubs to Be Organized in the Large Cities

Flying clubs under the present plan of the Aviation Country Clubs will be formed in cities of 100,000 or more population.

Proposed organizations include the upgradement to the National Board of Governors of 30 representative owners of unorganized social and business clubs. These clubs are not comparable to the present Aviation Country Clubs, and their representation is to be handled by the National Advisory Committee. There will also be included a temporary Board of Managers for the Flying Clubs.

The National Advisory Committee will conduct for the local Board of Managers in each city a membership drive and will undertake the enrollment of sufficient members to provide the necessary finances for a fully equipped club. After all per cent. of the membership measure under a budgeted plan for the financing of the club has been secured, a meeting of the members will be called, the permanent Board of Managers, officers, and committees elected and appointed,

property for the club selected, and the incorporation proceedings undertaken. An Advisory Committee has been formed for the purpose of aiding in the formation of flying clubs throughout the country. This committee will consist of the Board of Governors of the club, together with two members appointed by the membership of each flying club formed.

Aviation Country Clubs given such member the privilege of all state and flying facilities in all states where an Aviation Club is formed. The plan follows closely the formation of the very successful light flying clubs in England, Canada, and Australia.

Lieut. Wade Will Attempt 15 Day Flight Around the World Starting from Chicago

A ROUND-THE-WORLD airplane flight whose object will be definitely to lay down a route for world-trotter trips and for transoceanic trade, is being promoted for a take off August 29 from the Chicago lake front, with the return date set for 15 days later.

Lieut. Leigh Wade, who had command of the first world flight made in 1935 by U. S. Army planes, will be in charge of the expedition. Assisting him will be Capt. Bradley Jones, who is now chief of the bureau of air navigation, and who will act as navigator on this flight. Floyd K. Smith, a native Chicagoan, will go as radio pilot and a mechanic is to be selected later.

A team headed by H. C. Wattis, a broker, has been organized to raise the required \$100,000 to finance the flight. From the south of the Chicago River, where the take off is to be made, the plane will fly to San Francisco, thence to Honolulu, Manila Islands, Tokyo, Hong Kong, Calcutta, Rangoon, Constantinople, Lisbon, the Azores,里斯本, and Ortegal.

The plane, a high speed, all metal Boeing monoplane, will be equipped with porcupine and twin 500 h.p. Curtiss engines and will have a cruising speed of 175 m.p.h. Hops will not be longer than 50 hr., but the maximum radius of the plane will be 25 hr., so that there will be a liberal margin for safety. The longest hop will be over the 2000 mi. from the Malaya Islands to Tokyo.

Massachusetts Passes Bill Revising Law Governing Operation of Aircraft in State

AN ACT concerning the licensure laws relative to aircraft and amending them up to date will go into general agreement with the Federal Air Commerce Act was signed recently by Governor Pollard. Under the provisions of the new law the right of private flying in Massachusetts is extended to pilots licensed in that state or by federal authority, other states, or foreign countries. The registrant may grant unrestricted and limited unseated state licensure and foreign flying is permitted by pilots licensed in the state by federal authority, other states, and foreign countries for a period of twelve months.

No registration is required for aircraft registered under federal law or for private flying by neither state or foreign country. Flights are prohibited from flying below three thousand ft. over cities or densely populated areas. Landing fields are to be established by the Commonwealth or by cities or towns and the Department of Public Works may make, alter or revise rules and regulations governing landing fields whether established by public authority or otherwise.

The Register may under certain conditions revoke a pilot's license or right to operate or the registration of right of operation of an aircraft. Operation under the influence of liquor shall be punishable by imprisonment.

TIRE SERVICE FOR THE TOURISTS



Marshall Aircraft Corp. early, carrying Goodyear tires on its annual air tour.

GOODYEAR Service rides with the fleet on the Fourth National Air Tour. From Detroit to the Coast and back again, every pilot will know that close at hand is a Goodyear man, riding in the Ryan Brougham entered by the Mutual Aircraft Corporation—plane No. 16 piloted by Vance Breece—ready to render all possible help.

Goodyear Branches, and Depots, all along the route, will cooperate

THE GOODYEAR TIRE & RUBBER COMPANY, INC., AKRON, OHIO

GOOD YEAR
AIRPLANE TIRES
TRADE TIRE for aeromobile ATTENTION

Stinson Jr. Cabin Monoplane With Warner Scarb Engine in Ford Reliability Tour

AMONG THE new engines to be seen in the National Air Tour this year is a Warner Scarb engine in a monoplane built by the young pilot of the tree Stinson Jr., four place cabin monoplane piloted by Randolph G. Pease, who will be remembered as the pilot who in last year's non-tour annual race at a MacCready Metaphase. He is carrying as passenger S. A. Christiansen, test engineer of the Warner Aircraft Corp. of Detroit.

It was learned in the Warner factory that the factory is now putting through a factory order for 100 engines which are being assembled at the rate of three per week. Parts for the Warner engine are being produced by a group of leading Detroit engine parts manufacturers under close supervision by Warner engineers. The work at the Warner plant is presently well along and the first 500 engines will be available in September.

The Warner Scarb engine is a 100 h.p. air-cooled engine by present manufacturing methods before the Warner aircraft can be put into production. The engine is an air plane plant. A period of 18 months is the time estimated to complete the first 500 engines.

The Warner Aircraft Corp. and its distributor, carrying one of the most prominent automotive names in Detroit, have not been carried off their feet by the engine shortage situation, preferring to step up production gradually while increasing their product directly on the field and profiting by the experience and performance of each unit.

Aram Abgarian, 15, of Detroit Wins Model Contest of Airplane League of America

ARAM ABGARIAN, 15 yr old Detroit boy, exhibited a new world's record in the flight of the best (second) model of the Airplane League of America held in Detroit June 28 to see the outcome of the Air-Olympics. Abgarian's top model airplane remained aloft for 3046 seconds, winning him the second place ribbon and a trip to Europe. Another boy of 15 yrs. won a trip to Europe in the second place. He is Thomas C. Hall of Winona-Benton, N. C. First prize is the national championship to Joseph J. Koenig, 15 yr old, of Toledo, Ohio. In the 15 yr old class the record date was broken by less than two years. Hall, the record date, was broken by less than that age. Hall, ten and grace winner, was awarded the trophy.

Bordes the trips to Europe and the South where and sectional outdoor meetings, contests in the power and motor classes of both events were given checks for \$3000 signed by Claude, Edward E. Rydell, George Wright, and Griffith Ogden Kline, states of the American Legion.

Carl V. Garber, 35 yr old, Chicago, was the power master, and William Julian Dennis, 42 yr old, Moscow, Fla., was the under solo model master. George Thompson, 25, 15 yr old, Waukesha, Wis., D., was the power solo master. The time day entries exceeded more than 500 entries under enthusiastic.

William Wait, Jr., Airplane Designer, Joins Engineering Staff of Chance-Vought Corp.

WILLIAM WAIT, JR., well known airplane designer, has been made a member of the engineering organization of the Chance-Vought Corp. of Long Island City, N. Y., according to an announcement made recently by George Vought, president of the company.

Wait was recently one of the chief associates in joint staff of members of the engineering department of the Curtiss company, having first entered the Curtiss employ in 1917 at the Buffalo plant. When the engineering and experimental de-

signers of the Curtiss company were removed to Buffalo City, L. I., Wait was transferred there. He learned to fly in 1921 and has been an active flier since then, this being in line with the Vought policy to have all their executives and engineers be expert aviators.

Two Texas Organizations Unite to Build Airports from Gulf Coast to Kansas City

CONSIDERABLE INTEREST in the plan of the Beaumont Aero Club to secure the establishment of a series of airports from the Gulf Coast to Kansas City through East Texas and over the Ozarks has been evidenced by individuals and by local leaders. The movement is being sponsored partly by the Aero Club and the Texas Highway No. 6 Association.

The first of the airports has been located at Jasper, Tex., about 15 mi. north of Beaumont where a site was selected by C. C. Scott, manager of the Reliance Airways, Inc., and Frank L. Bestwick, Beaumont city park superintendent, who made the trip by air to look over the suggested location as representatives of the Aero Club. The trust contains 73 acres and is one and one-half miles from the town. It will be ready for use the latter part of July.

Runways are now under construction and when the field is finished it will have three landing strips, one north and south 3000 ft. long, one east and west 3000 ft. and the other 2000 ft. long. The first 1000 ft. of the north-south runway is paved and the remaining 2000 ft. is to be completed in time for the Jasper Invitational, to be held the first week in August. The airport is to be used for the 1928 National Air Meet.

Runways are now under construction and when the field is finished it will have three landing strips, one north and south 3000 ft. long, one east and west 3000 ft. and the other 2000 ft. long. The first 1000 ft. of the north-south runway is paved and the remaining 2000 ft. is to be completed in time for the 1928 National Air Meet.

German Dirigible to Fly Across Atlantic And Continue Flight to San Diego, Calif.

DR. ERNST REINHOLD BORIS, a member of the German's Research Institute of Aerodynamics, Berlin, has made dirigible design and safety measures with Dr. Kurt Arnsdorf presented by the German Zeppelin Corp. of Ahlhorn, Germany.

Dr. Eber is a sounding engineer for the Research Institute, and as such will be one of the group of experts who made up the new German dirigible 337 before it will be accepted by the German government. It is planned to fly the 337 across the Atlantic to Lehighport, N. J., and then to continue to San Diego, Calif., the trip to be made sometime in August or September. It is possible that the tour will be continued around the world, according to Dr. Eber.

The new German dirigible is about 90 per cent larger than the last August, but is smaller than the two proposed Zeppelins for the United States Navy, which the Goodyear Zeppelin Corp. hopes to construct.

Stribling Flying School, Macon, Ga., Offers Passenger Service to Atlanta and South

AIRPLANE PASSENGER service from Macon to Atlanta, Ga., and other points is now available through the Stribling Flying School at special rates, it was announced a few days ago by W. L. Stribling, Jr.

Passenger service is available for passengers to Atlanta at a speed rate of \$12 per trip to \$30 for a round trip if no connection is made to Atlanta. The cost to Atlanta and other southern states may be obtained.

A number of persons already have rented themselves of the opportunity of making quick trips by airplane, Stribling said.

WACO

-- takes off with full load in five seconds from standing start

-- lands in three seconds from time wheels touch ground to dead stop.

The official figures for WACO entry No. 18 in the National Air Tour, loaded to 2600 pounds were 5.06 seconds for take off and 3.04 for landing.

The Sensation of the Detroit Meet

WACO'S ability to get in and out of small fields is not only a factor of great safety in cross-country flying but a factor of great profit to the commercial operator.



The Advance Aircraft Co. TROY OHIO

B.B.T. Corp. of America to Supply Lighting Equipment for Fairbanks, Alaska, Airport
THAT NIGHT flying is steadily increasing in popularity is evidenced by a report of recent sales from W. R. Hauseman, general manager of the B.B.T. Corp. of America, manufacturer of airport lighting equipment with headquarters in the Atlantic Building, Philadelphia, Penna. Not included in the air mail routes the activity in lighting includes many private and commercial airports which are making previous night operations.

Because of the great amount of flying in Alaska where the days are short, the necessity for night flight illumination has become obvious. First in the territory to be lighted, the airport at Fairbanks will have a B.B.T. floodlight and a landing beam.

Operating as a night schedule the newly announced airline between Toledo and Detroit requires a floodlighted airport at both terminals. The Transcontinental Airport of Toledo, Ohio, has just installed a B.B.T. air portage floodlight of the type used at the principal airports on the New York-Pittsburgh air mail route. The Ford Airport at Dearborn, Mich., serving as the Detroit terminal, will provide two of the new B.B.T. intermediate floodlights.

Among the western airports to be lighted in Van Nuys, Los Angeles, and at the Waikiki Air Repair station, a B.B.T. air portage floodlight, landing lights and a landing beam light of the same design as those now in use at McNamee, Wash., will also be lighted. B.B.T. floodlights having been provided for each of these airports.

Other recent B.B.T. lighting installations outside the East Boston Airport, Boston, Mass., and the airport at Colorado, Colo.

Public Improvements Bond Issue Assures

New \$3,000,000 Field for Pittsburgh

PITTSBURGH HAS just been assured a new large airport through the action of the voters in approving a \$3,000,000 bond issue for public improvements in the Monongahela district. The total set up for the airport is \$3,000,000, divided equally between the County of Allegheny and City of Pittsburgh. The airport will be located on a 300-acre Airfield Survey Committee of the Chamber of Commerce, headed by A. H. Tracy, president of the Farmers' Industrial Bank of Pittsburgh. In choosing the airport, the Committee is taking into consideration a site which will provide ample space immediately adjacent for military and testing purposes. The Aero Club of Pittsburgh took a very active part in obtaining public approval of the airport, by supplying its own speakers to over forty local town meetings, business clubs, and by a series of studio talks.

Bogert Field, the present 40-acre municipal airport, which was established in 1925, has been found to be too small for future needs. The U. S. Government holds a 40-acre plot which is proposed to be purchased by the Pittsburgh Field, for use as an Army Reserve Field, with Capt. Thomas H. Von, U. S. Army Air Corps, commanding officer.

West Virginia Waco Sales Co. to Institute Students in Navigation and Meteorology

COURSES IN navigation and meteorology for pilot students will be given under the auspices of the West Virginia Waco Sales Co., Wheeling, W. Va. These courses will be given gratis by E. G. R. M. B. Adams, professor of meteorology at Loyola University, and Capt. Jack Adams of the Army Air Corps. Students may enter at any time.

Women of Wichita, Kans., Meet with National Air Tour Visitors and Form Flying Club
ADMIRABLE WOMEN of Wichita, Kan., are organizing the third women's flying club in the United States. Daring women organized the first and Matavious heads the second. Wichita women identified in some way with the airplane industry, met with visiting women on the National Air Tour there on the night of July 2 and laid the foundations for the flying club. Officers will be elected at a second meeting to be held shortly.

Mrs. Walter Ross, wife of the general manager of the Standard Oil Co. of Wichita, presided at the meeting. Visiting tour women made known Mrs. Frank W. Howes, who learned in piloting the big Ford tri-engined plane in the tour, received the fact that she had received \$4,000 in her air race last February. She and her husband spent their flying days in the 1927 tour.

Mrs. Phoebe Vaughan Qualls, only woman competitor in the air race tour and the first woman ever allowed to fly alone in such a race, said she learned to fly because everybody else did it. She took up flying in 1920. An inscription in flight for some time she also has made several paraplane jumps. Other visiting tour women who spoke briefly were Mrs. Eddie Barnes, Mrs. Ray Cooper of Detroit, Mrs. John C. Smith of Atlanta, and Mrs. Bert Hall,

It was agreed that currently remodeling will not be undertaken. It will be limited to women who already fly, too interested in aviation or who will work at behalf of aviation.

Rand, McNally & Co. of Chicago Publishes

Large Scale Aviation Map of United States

THE NEW Simplified Aviation Map of the United States is now being published by Rand, McNally & Co. of Chicago for use in rapidly computing distances, directions, flying times and rates, and provides all the features essential to a general reference map of the country. It is 18 x 23 in. by 4 ft. 4 in. in size and has a washable surface, making it possible for the user to mark, new locations of airports and routes and to make corrections in these markings when necessary.

The simple scale of 25 mi. to the inch and the compasses ranging radius of 100 mi. enable complete computation of air distances and flying times in extremely simple manner. It is drawn as a series projection based on two standard parallels and it is due to that projection that the map has the least possible distortion as a flat surface map of the United States. The greatest straight line distance in the country, from Washington to Florida, may be determined from the map with an error of less than one per cent. Cities and towns of more than 5,000 population and all county seats, rivers and roadsides are shown and the large star persons, the emerging of accurate detail without blighting legibility.

Alliance Aircraft Motor Corp. Now Using Old Morgan Ordnance Building for Factory

THE BUILDING of the Morgan Ordnance plant at Allentown, Pa., is now being used by Alliance Aircraft Motor Corp. as a factory and sheet 29 engines and planes are under construction there. Machinery of the Hess Aircraft Co. of Wyndmoor, Pa., has been moved to Allentown and installed in the new plant which is manufacturing the Hess engine. The first complete plane will be tax-free in the near future by Capt. Fred Oake, test pilot for the Alliance Aircraft Motor Corp.

WRIGHT

Complete Supply Base:
CURTISS FIELD HANGAR
Box 333, Garden City, L. I., N. Y.

LOCKHEED

MOSLER

JOHNSON
RUSSELL

HAMILTON

CONSOLIDATED

GOODYEAR



Keystone Aircraft Corp. of Bristol, Penna., Building New Type Naval Training Plane

THE KESTERONE "Pug," manufactured by the Keystone Aircraft Corp., Bristol, Penna., is one of the most recent attempts to be made by that company for the U. S. Navy. The biplane, which is designated XN7A-1 by its maker, is to be used by the Navy for instruction in flight and flexible gunnery, bombing and spotting. It is a two place conventional and simple and is powered with a Wright J-5 Whirlwind engine and a Standard Steel propeller.

In recent test flights the "Pug" climbed at the rate of 55 ft per minute and was put through a series of maneuvers



Based upon well known gunnery and bombing universities in the new Kesterone "Pug" type plane. The craft is a two place conventional and simple.

to determine the reaction of the plane under severe conditions. In all of the tests it gave proof of the exceptionally rugged construction, ease of control and stability without hard service for which it was designed.

As in the majority of American built planes, the fuselage is constructed of three-ply mahogany strip lathing, welded in the form of a box. No wires are used for internal bracing. The tail surfaces are also made using curved with fabric. The stabilizer may be adjusted from the pilot's seat and



The "Pug" maneuvered for an work.

seated surfaces are fastened by a system of cables. The stabilizer panels are adjustable through a wide range of motion. The tail surfaces are completely braced and are so designed as to provide a degree of lateral stability.

The wings are of conventional construction and the center and in the U.S.A.-20-B. Control struts attached to the upper fuselage longitudinal support the outer section and are so placed as to prevent any strain to the forward cockpit. The retarding struts are of the X type. Flexible struts were employed and braced at the top of each wing panel. Two gasoline tanks, having a total capacity of 40 gallons, are held under the center section. There are no fuel tanks in the fuselage.

The engine mounting is of steel tube construction and is pinned to the fuselage at four points. A hand-crank start-

er with a booster magnet is installed on the engine. Repairs may be made easily at the back of the engine and in front of the motor rods by removing the cowling.

Quadrant mounted gunner's seats are provided, one for the observer, who is designated XN7A-1 by his maker, and one to be used by the Navy for instruction in flight and flexible gunnery, bombing and spotting. It is a two place conventional and simple and is powered with a Wright J-5 Whirlwind engine and a Standard Steel propeller.

In recent test flights the "Pug" climbed at the rate of 55 ft per minute and was put through a series of maneuvers

Spadine 245 Lb. Biplane

The landing gear is of the split type with a hydraulic shock absorber arrangement. In the noseplane conversion the positions are indicated by N type struts in the fuselage. The weight of the land plane is 2262 lb. and that of the seaplane 2779 lb.

Specifications:

Wing area	305 sq. ft.
Aspect ratio	24.7 sq. ft.
Stabilizer area	18.2 sq. ft.
Elevator area	18.2 sq. ft.
Fins area	3.3 sq. ft.
Booster area	19.0 sq. ft.
Horizontal surface area	22.2 sq. ft.
Vertical surface area	12.8 sq. ft.
Wing curve	U8A-39-B
Dimensions	
Span, upper wing	31 ft.
Span, lower wing	31 ft.
Length, land plane	30 ft. 7½ in.
Height, seaplane	8 ft. 1½ in.
Length, land plane	36 ft. 11 in.
Length, seaplane	36 ft. 11 in.
Height	9 ft. 7½ in.
Stagger	15 in.
Dihedral (both wings)	2 deg.
Sweepback	0 deg.
Gonal (both wings)	9 deg.
Incidence (both wings)	6 deg.
Span of tail plane	12 ft. 2 in.
Performance	
Climb at 1000 ft/min.	1280 ft/min.
Max speed	145 mph
Climb in 30 min.	3000 ft
Service ceiling	24,000 ft
Endurance at full speed	22 hr.
Endurance at cruising speed	4.9 hr.
Range at full speed	250 mi.
Range at cruising speed	350 mi.

Miss Ruth Haviland, Flying Enthusiast, Taking Course to Obtain Pilot's License

MRS. RUTH Haviland of Kansas City, Mo., who "flies like a bird" with her efforts to obtain passes with Charles E. Bond on his flight to Europe, is now making solo flights at a Kansas City air school. She is taking a course with the view of becoming a licensed pilot.



*Ancient and Bullet-Riddled
—Still flying every day in Nicaragua*

WHEN the Marines landed in Nicaragua, according to Major Bissell's story in a report of "Collier's," they found two young American soldiers of Fortune, Morris Mann and Brooks, comprising the personnel of the Nicaraguan Federal Air Forces.

TWO SWALLOW PLANES, engine and dreams, were their equipment. In these two old planes on which they had invented unique methods, Mann and Brooks added fresh glory to "old" the country with brilliant gun fire, and drop bombs loaded with their marks. They had the last and stately victory when the last bullet passed the air leaders.

But still they flew—down steep descents and brought down many of the enemy's sturdy biplanes. And when these two old planes would drop out and enter the address book holes from their little air with the enemy such close set and cover the address book holes from their little air with the enemy.

What does anyone could be asked of the stomachs of those ancient Swallows? How many parts they had been in service—what their experiences before reaching Nicaragua—on land forces. You never see these old swallows flying over the border land of service.

Fortunate of both's experience. Swallows which will regularly return to places among the leading of the world's most dangerous flying fields. Their flying plane is popularity and popularity and popularity in the American market. No wonder Swallow owners everywhere are enthusiastic—no wonder Swallow dealers are making more and more and success numbers are rapidly being mapped up.

Let me tell you more about the Swallow—America's First Commercial Airplane—and the possibilities for a business class aircraft man in your territory. What we want is today



Victor H. Ross, Genl. Mgr.

SWALLOW AIRPLANE COMPANY
WICHITA KANSAS

Guy S. Means, Automobile Dealer, Buys

Sweabrook Airport Near Fort Wayne, Ind.
THE SALE of the Sweabrook Airport, five miles north of Fort Wayne, Ind., to Guy S. Means, widely known Indiana automobile dealer, has just been announced. The Sweabrook Company was the first organization of its kind in Fort Wayne and it operated the first airport in that city.

Mr. Means has signed a 30 yr. lease on the field and has obtained an option on 30 additional acres adjoining the field. The new owner plans to form a corporation to start airplanes and to develop commercial aviation in northern Indiana. Several prominent business men will be associated with him in the new corporation.

Additional facilities will be necessary and the field now has seven hangars with space for 25 planes. It contains 12 acres.

Paul Heacock, former manager of the Sweabrook Airport, will continue to operate a service station there from the field. Mr. Heacock will also continue the manufacture of the biplane type monoplane, the Sky Master, at his plant on the field.

**United Air Transportation Co., Wichita,
Incorporates With Capital of \$100,000**

THE UNITED AIR TRANSPORTATION CO. OF WICHITA, Kans., has just been granted a charter by the state charter board & incorporation of \$100,000 was authorized. Incorporators are A. B. Green, Ernest G. Wayman, and Fred Werner of Wichita; E. E. Lamb of Tulsa Center, and John H. Randolph of Kansas City, Mo. The Comco formerly was the Lark Aircraft Corp. Large cabin type biplanes are manufactured by the United.

Allerton Alcorn School Shows Record Enrollment for Evening Flying Classes

THE POPULARITY of evening flying instruction has greatly depast recent months, and by the request of enrollment at the Allerton Alcorn School of Aviation at Arcola, Ill. Twenty-seven students are now taking flying lessons there instructed by William Dodd, Jr., chief pilot and former civilian instructor in the U. S. Army. Future registration will be accepted only for advanced flying instruction as every evening is now filled up.

Complete courses in theory of flight, aerodynamics, navigation and allied subjects are given every Wednesday night at the ground school under the direction of Leon A. M. Alcorn, formerly of the Royal Air Force. Arrangements may be made for solo time for advanced students with the Trustee, Dodd Aviation Co., Inc., operator of the airport.

**Mid-West Airways, Inc., Purchases Field
Of Hawkeye Air Transport at Waterloo, Ia.**

THE MID-WEST AIRWAYS INC., Muncie, Ind., has taken over the field and air terminal of Waterloo, Ia., formerly operated by the Hawkeye Air Transport Co., which has been discontinued from the Waterloo Airport, the center of the field. The Mid-West has a two year lease on the field at a rental of \$1,200 a year with optional renewal clause at a price not exceed \$2,000.

John H. Lexington, general manager of the Muncie Field, concluded negotiations for the lease and will locate a four passenger biplane plane here for service. The Mid-West Airways is Iowa and Illinois distributor for the Waco and Ryan planes.

Buy MILLER AIRPLANE PRODUCTS

**REVIS FOR OX-3**

By LESLIE C. MILLER
At least employing all tools of the OX-3 Cessna model and the most modern work tools. More power, greater maneuverability, efficiency, reliability and economy out of the type of aircraft.

Just \$100. Extra heavy equipment with the OX-3
THREE ONE DOLLAR

MILLER'S POSITIVE INTAKE VALVE CONTROL FOR OX-3

Saves 15% on gas, adds 20 to 30 more in flying speed, takes all power from the engine, greatly reduces friction in pipe bearing surfaces, valve guides and pull rod. Over one thousand sets now in use in 1500 different types of aircraft. Send money for catalog. Standard equipment on Allerton.

PRICE, per set of eight, \$15.

MILLER'S ROLLER ROCKER ARM

Promising wear on exhaust valve guides and seats, doubles the life of the OX cylinder. The roller rolls freely across the valve stem end, instead of striking and exerting a tremendous side pressure on the guide and valve seat as is the case with the former taper. More power longer sustained.

PRICE, per set of eight, \$15.

THE MILLER OVERHEAD SYSTEM

Institutes the Miller overhead and ankle valve control, all valve rods as many cylinders are used since constant pressure from one Cessna Bell Creek Union Carbide (Ox-3) plane up to and on Executive (Ox-5) plane. Each plug is used on Executive (Ox-5) and push rod. These plugs are now used on Ox-3 and push rod.

Price for Eight cylinders, four push rods, \$25.00. With rods \$30.

**MILLER VALVE GUIDE
REPLACEMENT SET**

Includes a set which holds in top of OX cylinder, through which a hand gearwheel and worm gear are used to turn valve guide. The valve guide is held in place by a tapered sleeve which fits around the hole. We make the threaded gear valve guides.

Complete Set \$25.

GRAY IRON VALVE GUIDES \$5.65**VALVE SEAT REAMER SET**

Including part withdrawer, mandrel and reamer and necessary wrenches. Every Gray Iron set to order is used in its largest valves.

Complete Set \$22.50

OX-3 standard and special valve seaters, standard high stem pressure piston, piston pins, piston rings, cylinder and piston. Price for set.

**Miller engine products are sold on 30 days credit.
Money refunded on all non-delivery or poor quality.**

Price for engine, cylinder, piston, piston pins, piston rings, cylinder and piston, \$100.00.

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The Keystone “PUP”

A newly designed Training Plane — built to suit the specific requirements of the U. S. Naval Air Service as a land or seaplane.

Performance, Maneuverability and Maintenance — synonymous with "Keystone" in Aircraft circles—have indicated the "Pup" as the Training Plane of the future.

Keystone Aircraft Corporation

BRISTOL, PENNSYLVANIA

TRADE TOC IN AVIATION

Production Vought Corsairs Tested and Found Superior to Experimental Models

A VERY interesting series of trials were recently made over the official Navy speed test course at Anacostia, D. C., by Capt. Condie A. G. Miles, U.S.N., and Capt. R. W. Calvert, U.S.N., of the Flight Test Section, Bureau of Aeronautics, to determine popular characteristics of one of the new production type Vought "Corsairs", and the superiority in speed of these planes over the experimental planes delivered last year; and what established four world records.

In these trials, a nine-foot diameter, two-blade, adjustable pitch direct propeller was used, being the type designed by Capt. Condie C. H. Elliott of the Bureau of Aeronautics, Navy Department, and manufactured by the Standard Steel Propeller Co. of Pittsburgh, Penna. In each case, the gross flight weight was approximately 3350 lb., and the plane was so loaded so that a direct comparison could be made with the experimental planes.

Under the above conditions, the standard production Corsair propeller showed a tested average speed of 309.1 mph., piloted by Lieutenant Calvert, U.S.N., in four consecutive runs up and down the course. In the afternoon of the same day, with the pitch of the propeller being increased slightly, there was an average of 328 mph. in each of the four runs, piloted by Capt. Condie A. G. Miles, U.S.N., and the plane was so loaded so that a direct comparison could be made with the experimental planes.

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Tonopah N. Jersey Confidence Trials

Those who followed a series of timed trials made by Captain N. J. Joyce, pilot and aircraft manager of Converse Vought Corp., with Lieutenant Calvert as observer, will remember that Mr. Joyce's team averaged 195.7 mph. with the propeller setting holding the engine down substantially below its rated rpm. This was the case in all runs, due to changes in pitch settings, except for those made by Lieutenant Calvert at an average of 199.1 mph. in the final run.

As a land plane, the Corsair showed an average speed of 192.2 mph. A slight modification in propeller setting was then tried, with the result that a marked increase was shown (195.7 mph.). The propeller driving at rated speed, the production model has easily won points to prove the high speed characteristics of the earlier experimental models, with the added advantage that the production Corsair surplus, fitted as a two-seater fighter, is practically as fast and as maneuverable as the same plane as a four-place observation type.

Oakland, Calif., Boy Wins Prize in Model Contest Held by Boeing Air Transport

A 24 in. model of a Boeing Air Transport mail plane, built by an Oakfield, Calif., boy, was the winner of a student held at Oakfield recently. The plane was sent to Detroit to compete in the national model contest held there.

Doubts and predictions of the model were greatly admired by the judges. The cockpit contained all the instruments and the rudder. Brake levers, safety belt, stabilizer control, and even the pilot's radio lead wire were there. The wings held the model just barely taut. In the passenger cabin, enclosed by two glass panels down, were the seats and baggage rack. Boys who entered the contest were supplied with specifications and drawings of the plane by the Boeing Air Transport traffic office.

The Airsedan



For The Discriminating Purchaser:

THE AIRSEDAN

AIRLINE OPERATORS will find this plane meets with all their requirements. The cabin has exceptionally comfortable seats for four large passengers and the pilot's visibility is unexcelled.

PRIVATE OWNERS will approve of the fine appointments which are selected to satisfy the most critical taste.

CORPORATIONS desiring to keep step with the progress of the times will find that here is an efficient and upto-date vehicle for transporting executives and personnel to widely separated branches.

We will be glad to assist you in determining the adaptability of this fine product to your requirements.

BUHL AIRCRAFT COMPANY
Marysville Michigan

Western Combination Planning Routes Between Chicago and Pacific Coast Cities

PLANS FOR a western network of commercial air routes connecting Chicago and with Portland, Ore., San Francisco and Los Angeles, Calif., an older western route have been announced by Charles E. Eaton, president of Union Air Lines, the Douglas corporation which recently absorbed the West Coast Air Transport Co. Four great high-speed routes of carrying 35 passengers each have been outlined from the Bush Aeromarine Co. of Santa Monica, Calif.

An early, nonstop, Peacock Airways, is being organized in Los Angeles to connect with San Francisco.

The Union Air Lines will cover the northern territory. Although separate concerns, they will work together, under present terms, to share management.

This announcement, however, can make routes in San Francisco in which it was said that the Union Air Lines would operate six stopless stage service from Southern California and that its company headquarters would be moved from Portland to San Francisco. Union Air Lines headquarters will remain at Portland.

On August 1 passenger and express service between Portland and San Francisco, three weekly, will be made daily. Other weekly between Portland and San Jose, Wash., will be started August 12. At about the same time transcontinental daily service from Portland via Lake City, to Everett, to Kenosha City, to Chicago, and from San Francisco to Lake City will be opened with the northern leg well as the line is started. Portland-San Diego service is now at a late stage.

Both Companies to Use Bush Planes

The Peacock company plans to start daily service from San Francisco to Chicago by way of Los Angeles, San Diego, Phoenix, El Paso, Dallas and St. Louis. Bush plane planes will be used exclusively by both Bush and Peacock companies. Eaton has been made a director in the Bush concern and a substantial amount of stock is being purchased by Peacock.

On Aug. 1, San Francisco is an organization of Peacock Stage, flying a transcontinental and coastwise stage line. The Peacock, Airways will be a dozen subsidiary of the stage line.

The massive planes have already been designed by La Marre Davis, president of the Bush company. Each plane will have four engines with a total of 1790 hp. There will be two nose engines, one directly above the other, with the pilots' cockpit between. Upper wing span will be 81 ft., lower 69 ft. Overall length will be 32 ft. The plane will weigh 17,000 lb. and will have eight landing wheels.

Engines will be of a high compression of 150-c.p.h. and a maximum speed of 320 mph. They will be mono-supercharged, having room, insulation and space for 26 passengers. The cabin will be double decked, 18 passengers above and 20 below. On class rates the dining service will be reduced sailing rates for the 26 passengers. Construction of the four planes is to begin August 1. Two will be taken by each company.

New 3,000,000 Candlepower Beacon Placed On Roof of Biltmore Hotel, Providence, R. I.

A GIANT lantern, generating 3,000,000 candlepower has been placed on the Biltmore Hotel, Providence, R. I., and will be operated from sunset to sunrise. It is an official government Army lantern and will be indicated on all aeronautical charts and air maps in the future.

The lantern measures 20 in. in diameter and can be seen from 30 to 36 mi. on clear nights. The name of the city can be read from a height of 1000 ft.

**Plan Great Aircraft Industrial Center
For Los Angeles Metropolitan Airport**

THE LOS ANGELES Metropolitan Airport has been established to fit the long felt need of the country's industry at Southern California's 200,000 persons who travel to work for their business. It is located in the San Fernando Valley and is closer to the center of the origin of the Los Angeles air passenger travel than any other of the present proposed major airport developments. Airlines flying in the Los Angeles territory are thoroughly cognizant of the fact that when periodically all portions of the Los Angeles metropolitan area are served by Reg. 61, that the San Fernando Valley is clear. Air traffic originating from the L. A. Metropolitan Airport, flying to the south and so far eastward as toward Salt Lake City, will find it unnecessary to cross the city or thickly populated areas in arriving at their basic point.

Waldie D. WATKINS MEMORIAL PROJECT

The project at present is under the management of Waldie D. Watkins, veteran pilot and aeronautical engineer. He has laid plans for what promises to be one of the greatest aircraft industrial centers of the country. The savings and the benefits to the public, both directly where government, and as a consequence building crews and previous made for a radio station and weather houses to base the company about October 1, of this year.

By name producer of modern type or uses of buildings, the sponsors of the project endeavor being able to establish relations with suitable contractors which will materially decrease the cost of buildings of given size, and in this way enable those having as the field to enjoy a material

saving and building cost if they so desire. They are also a postans to be of assistance in helping the financing or erection of permanent buildings on the L. A. Metropolitan Airport.

**Pioneer Aircraft School, Inc., Planning
To Build Three New Models of Airplane**

FIVE STUDENTS have been accepted recently by the Pioneer Aircraft School, Inc., of East Paterson, N. J., and numerous activities are planned for the summer and the fall term. The program includes the production of three models of new production plane designed by Charles E. West, a member of the corporation and formerly associated with the Gates Flying Circus.

The first model of the new plane set to have the same fuselage and tail surfaces and standardized wings, whereby it will be possible to convert one model to any other by an interchange of wings and engines. All models will be built for LeTourneau engines.

**National Air Transport Expects Large
Increase in Volume of Mail at New Rates**

C. R. FLICKING, announced manager of the National Air Transport, Inc., Kansas City, Mo., making arrangements for a big increase in the amount of mail to be handled when the new rates go into effect August 1. A survey among Kansas City business men indicates the increase will be very large and may necessitate additional planes. With new contract routes also due to be in operation out of Kansas City in the next few weeks, the "expanding" mail will necessitate

Col. Lindbergh to Use New Curtiss Falcon

In Transcontinental Air Transport Work
THE CURTISS FALCON mail plane, completed recently by the Curtiss Aeroplane & Motor Co. at Glendale, Calif., X. Y., has been purchased by the newly-formed Transcontinental Air Transport, and assigned to Col. Charles A. Lindbergh, head of the Delinquent Committee, for personal use.

The mail plane is exemplarily fast, having a top speed of just over 128 miles and a cruising speed of 100 m.p.h. The Falcon is powered with a 615 hp Curtiss "Compasser" water cooled, V-12 type engine, of the same type which was used in the "Spirit of St. Louis" and "Frisco" planes which won the Pulitzer and Observership prize races last fall at Spokane, and record breaking speeds.

The Falcon mailplane is equipped to carry 250 lbs of mail or baggage in two small hard compartments, forward of the pilot, in the fuselage. The rear compartment is also avail-



**A whirling propeller
...respects no person**

THE man who "knows" airplanes, says clear of a whirling propeller. Curious credulity, however, will cluster about a 'plane long warmed-up — headless, in these currency and enthusiasm, of the danger of getting too close.

Flying field visitors must be protected against their own thoughtlessness. Accidents undermine public confidence in aviation.

Mark a safety zone with an Anchor Chain Link Wire Fence and restrict visitors to this area. Anchor Fences are available in all heights and types for every need. Everlasting service is assured by the Exclusive Anchor Postion: (1) U-bar Line Posts (2) Square Tension Posts (3) Demo Anchorage (4) Wire-Weld Gates.

Anchor Nation-wide Fencing Service places fencing specialists and trained erectors at your disposal. Please or write the nearest Anchor District Office for complete information.

ANCHOR POST FENCE CO.
EASTERN AVIATION AND AIR ZZ, BALTIMORE, MD.
Akron, Ohio; Charlotte, North Carolina; Denver, Colorado; Houston, Indianapolis, Los Angeles, Manila, L. I., Newark, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Shreveport.

Representatives in other principal cities.



**NATION-WIDE
FENCING SERVICE**



TOP

**Air Mail
Passenger Lines
Barnstorming
Joy Hopping
Instructing
Heavy Hauling
The Family
Sport
Pleasure
Hard Service
Economy
Big Profits**

THE NEW

STANDARD

5 G-D 24

PLACE 5

\$4250

SPEED 100 MPH.
HIGH SPEED 110 MPH.
LANDING SPEED 35 MPH.
CRUISE RATE 80 MPH.

WEIGHT FOR 5-PASSENGER CABIN

THE GATES-DAY
AIRCRAFT CORP.
PATERSON, N.J.

**Mass Flight to be Held Aug. 16 in San Diego
To Commemorate Wright's First Take Off**

RADAR DURING, Calif., will be the scene on August 16 of a mass flight in which 100 planes representing all types of aircraft from the Army, Navy, and Marine Corps, and probably all types of planes at present in these forces, will be the greatest number of aircraft ever and simultaneously. The Navy is expected to send up 250 planes, under command of Capt. J. M. Stevens. The Army will be represented by 100 planes from MacCoy, Craig, Kelly, and Rockwell Fields. Fifteen Carrier Pilots will go up for the Marine Corps.

The flight will commemorate the 55th anniversary of the Wright brothers' first successful take off in a heavier-than-air machine, with a total of 1,000 machines in the air, and attract the attention of the nation in San Diego.

Notables to be Present

Among those reported to have signaled their intention of being in San Diego for the event are Herbert Hoover, Cal. Gov. Charles L. Fungate, the secretary for transportation in the Department of War, Harry Clegg, Mrs. Charles J. Evans, Capt. John E. Corry, Harry F. Guggenheim, Wright's son, Anthony F. Davis, secretary of war; Anthony H. G. Fisher, Glenn Martin, Glenn Curtiss, and Will Rogers.

Virtually will witness a simulated attack against the sky by five squadrons of planes, laying off a 300-ft. smoke screen completely masking the entire exhibition of napalm and bombs dropping; simulated flights of the dash of the aircraft carriers Langley, Saratoga, and Lexington; six men dropping simultaneously from a Marine bomber with guns blazing; demolition of a 20,000,000 candlepower beacon and two miles of stretch on the ground, ready for inspection.

Edo Pontoon and the Ryan Brougham

THIS Ryan Brougham, the ship made famous in "Laddie," has made popular by its use over seas, has proved as popular as a Seaplane. And what a Seaplane! With its exceptionally quiet motor, it has won the highest performance of the day. Its top speed, affected by the weight of floats, is less than a record holder in the class of Wright engine Cessna Seaplanes.

With standard performances the Ryan Brougham Seaplane surpasses any plane ever built, and is the best buy of the week. Top rate class of the landing, its responsiveness with the use and desire of Edo floats, provides very smoothness when landing on water. The Edo Brougham is the steamer and at the new allows the ship to be brought close



on a beach, upon making landing and disembarking more comfortable.

This straight seated float makes landing very easy, and due to an ingenious system of folding the floats, the removal and replacement of the floats, giving double buoyancy of 11,000 lbs. Each location of the wing allows the Brougham to be easily transported by truck or boat, or by truck, per or land. It's a model both. Built of "Alford" and "Academy" wood.



EDO AIRCRAFT CORPORATION
CORLISS FIELD, L. I., N. Y.

STANDARDIZED ALL METAL SEAPLANE FLOATS

THANK YOU for visiting AVIATION

Twenty-four Officers Graduated June 30

From Army Air School at Langley Field TWENTY-FOUR OFFICERS, two of them from foreign countries, and the remainder from various branches of the Army and Marine Corps, were graduated from the Army Air Corps Technical School at Langley Field, Hampton, Va., June 30 at exercises over which Maj. Gen. James E. Pease, chief of the Air Corps, presided.

Graduates included: Majors Frank M. Anderson, George H. Brown, Roy S. Clegg, John F. Corry, James W. Jones, Arnold K. Krueger, Hartman H. G. Richards, Martin F. Schatz, and Robert L. Walker; Captain Richard H. Belknap, Wilton H. Blair, Robert E. Gilpin, and Lawrence W. Stiles, all of the Air Corps; Maj. Frank T. Evans, Capt. Francis P. McMurtry, and Capt. Jason E. Davis, of the Marine Corps; Capt. William W. Wan, Commandant, Warfare Services Dept.; Maj. George E. Armstrong, Capt. Charles E. Coughlin, Capt. of Engineers; Maj. George E. Armer, Field Artillery; Capt. Stuart Cudler, Infantry; Capt. Raymond C. Hall, Cavalry; and Maj. George Marquis, Gunnery Army and Capt. Edward Bonner, Argentine Navy.

Cartier Organization to Open Southern

Branch of School at Miami Next December

GLENN H. CARTIER has announced the opening of the southern branch of the Cartier Flying School at Miami in late November in December and operates each winter session till May. The 100 per cent flying weather in the Miami district during the frigid and foggy months of the North was the reason of this decision to use one of our oldest schools. Plans for enrollment of students and selection of instructors are getting under way in Glendale City, the G. H. Q. of the Cartier organization.

James Rinchart in American Eagle Plane Makes Endurance Record for OX-5 Engine

A WORLD-CLASS record of 35 hr. 25 min. and 25.5 sec. for sustained flight of a plane powered with a 100 hp. Curtiss OX-5 engine was made by James Rinchart, 39 yr old Texan pilot, at Seaside, Ore., on June 28. The flight was made in the pilot's American Eagle biplane. The mark is official. Louis Valentine, Captain of Seattle, Wash., secretary of the National Aeromarine Association, and representative of the Polytechnic Aeromarine International, witnessed and checked time at the flight.

The plane was fitted with auxiliary tanks bringing the fuel fuel supply carried to 240 gal. Rinchart took off at 4:57 A.M. The load was about 600 lb. and he was off the line with a total fuel of only about 1200 ft. A light wind helped him in the early morning hours of the day the sun was very cold—reaching 40° F. The engine was not hot when his plane down at 8:15 P.M. and had 16 gal. of gasoline left. The engine was running perfectly but Rinchart did not want to risk landing after dark for fear of injuring somebody in the large crowd that had gathered on the beach.

This is the first official endurance record in the OX-5 class. One unofficial record was made by a St. Paul pilot who stayed in the air for 32 hr. and 30 min. by refueling stops.

Jammy's father, Mr. Curtis Rinchart, Portland physician, was at the beach to watch the flight. Young Rinchart is head of the Columbia Gauge Airways Co. which operates from a Portland amusement bath.

**Monarch Aircraft Co. of Riverside, Ill.,
Now Manufacturing Three Place Biplane**

THE MONARCH three place biplane, manufactured by the Monarch Aircraft Co. of Riverside, Ill., is a light commercial biplane of aerobatic type powered with a 100 hp. Curtiss OX-5 engine or our power plant推 up to 260 hp. In design the plane possesses safety factors beyond the imagination of the Department of Commerce and all parts have been approved by Aerodata, Inc.

As may be seen in the production plan the Monarch has a simple tail fin, rudder and vertical wings. The landing gear is of the split hydraulic type, each side independently controlled by the pilot, the spring and shock absorber working inside the tubes that form the sides.

The plane has a wing span of 32 ft. on the upper wing and 20½ ft. on the lower wing. Both wings have a chord of 5 ft. 2 in. and an airfoil of 7½ deg. The overall length of the plane is 28½ ft. and the central height 9½ ft. The weight empty is 1300 lb. and the useful load 800 lb. In performance tests the plane attains a high speed of 200 mph and has a landing speed of 30 mph.

Both passengers and pilot seats are fully upholstered and an Elgin Upright Clock is mounted in front of the pilot. The storage tank has a capacity of 60 gal. The wings are braced by 5 struts and struts are wire.

H. S. Lowe of Kansas City Becomes District Sales Manager for American Eagle Corp.

HL S. LOWE, for the last 25 yr. distributor of Auterra cameras at Kansas City, has sold his interests to the Auterra factory and will become district sales manager of the American Eagle Aircraft Corp. of Kansas City, with headquarters in Chicago. Mr. Lowe will look after the American Eagle company's interests in Illinois, Kansas, Kentucky, Iowa, Missouri, Michigan, Wisconsin, and Ohio. He will sell a plane in his work. Mr. Lowe has long been interested in aviation for thirty years.

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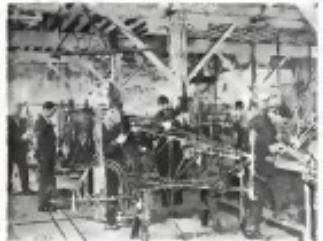
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sooty gun does this work and the oil is applied through the gun.

Of particular interest is the manner in which the Bridge department handles its production work. The completed Borough road 196 special drainage made from solid rolled stamping steel. Under the old method 15 men were required to speed their tasks two making the same fittings said on



Writing a feuilleton in the Melville factory

the three types of planes the company was then producing. Now two goldie men, two little men, a man at a rolling machine and one at the drill press produce enough fittings for these Biplanes a week and without increasing their per-

Treatment of Pavement and Surfaces

Continued from page 27

THANK THE AUTHOR AND ATTACH

July 16, 1972

There is no glass from the flood lighting, making possible extensive utilization of ground markings. When Col. Charles A. Laddie visited Minnesota during September, 1931, the words "Welcome Lodge" were lettered in white paint upon the black surface of the capsule, positioned on the arms of the hunger designated for his use. An accompanying photograph shows this lettering as it appeared seven months later.

Anhydrite concrete also has the advantage of being lower in cost than other types of hard surfaced pavements. When laid of equal thickness there is very little difference in price.

There may be doubts in the minds of some readers as to

just what is meant by asphaltic asphalts. It is a mixture of crushed rock, gravel, or crushed gravel, sand and fiber bound together with asphalt while hot in a suitable mixing device, and laid and compressed into a dense homogeneous mass. There are several types of asphaltic asphalts, usually



**What's so "Funny"
about a man
like *this*?**

Why set Correspondence Schools piled about? Aviation itself won't take so seriously at first, you know. In fact, there was quite general doubt as to the sanity of the Wright brothers.

There is no essential difference between studying a textbook in a classroom and studying it yourself at home. And when a man has the initiative, will power and strength of character to master a subject "on his own", it must be the case most apt to give him a dependable employer." He goes on:

J Touch Aviation by Mail

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You know how many kinds of jobs there are in Aviation. To handle any of these properly, a man must know what he is doing and why he is doing it. But how is he going to learn the fundamental facts and theoretical principles of the subject? Some one has said that "A man who has time, need spend no time." Consequently we have the Correspondence Schools. The latest method offers every student advantages because the student goes down at a speed suitable to his own ability. In the present course he has ten weeks in which either everything is learned — or nearly so — in time to master the basic theory and practice.

I have a book I'd like you to read. It will prove to you that Aviation is being taught by
nonprofessionals—it will give you a clear idea
of what Aviation Instruction is doing. May I
send you a copy? The hospital tells me "yes."

Walter Hinman, *President*
American Institute of U. S. A.

1115 Constitution Ave., Washington, D. C.

What Happened?

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1000 Franklin Avenue
Minneapolis 8, Minn.
Mr. and Mrs. John G. B. Smith
1000 Franklin Avenue
Minneapolis 8, Minn.
John G. B. Smith
1000 Franklin Avenue
Minneapolis 8, Minn.

TIME IN THE AIR AND THE INFLATION

PlaneTalk

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those which
pull trains
travel over
the air,
and
return to the
earth on ac-
celeration or
deceleration.

FLIGHT RECORD

Newspaper Journal, Mo.—
Left Wichita, Mo., mid-morning.
Arrived St. Louis, Mo., 9:45 A.M.
Arrived St. Paul, Minn., 10:45 A.M.
Arrived Iowa City, 11:45 A.M.
Arrived Cedar Rapids, 12:45 P.M.
Arrived Des Moines, 1:45 P.M.
Arrived Sioux City, 2:45 P.M.
Arrived Omaha, 3:45 P.M.
Arrived Denver, 4:45 P.M.
Arrived Salt Lake City, 5:45 P.M.

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Applying oil to the runway surfaces on Terminal Island Airport, Wilshire, Calif.

water specifications prepared in the Los Angeles City Engineer's office. The runways were first prepared for paving by spreading a covering of clay over the natural sand and gravel soil. The purpose of the clay is to act as a binder, holding the larger aggregates in place. This is in accordance with the rules of the Oregon and California Highway Commissioners who found that sand materials containing a percentage of clay which adheres to a binder gives better results when used than sand materials in paving the roads. After the required amount of clay had been placed over the area it was graded, smoothed and graded prior to paving.

A road of having a 50 to 60 per cent. asphalt content was applied under a premix of twenty-five pounds at a temperature of from 240 deg. to 260 deg. F. at the rate of $\frac{1}{2}$ lb. per sq. yd. The surface was designed with a slope of 2% after the oil was applied. A more permanent surface treatment will be employed at some future date.

It is expected that this field will be a center of a number of a number types of experiments. The heavier the load on such construction the more pronounced the results observed and the better the bearing power. The asphalt and瀂ementary processes to handle the load are probably largely responsible for the class of a light grade of oil. The use of a heavy oil greatly increases the water proof qualities of the surface thus protecting the subgrade and prolonging the life of the surface.

The behavior of these surfaces under maximum weight and under various weather conditions will be watched with a great deal of interest. Eventually, the surface has only been considered as a support system. Like the highway system, the development of airports with mobile landing fields and runways will be largely dependent upon the demands. In view of the developments already made it is anticipated that asphaltic materials of either the asphaltic concrete or steel type will play an important part.

Thus far, the double effect in providing a smooth surface and in sealing the oil with the earth surface. The surface was not sealed as it was desired that the field remain soft enough that the full braking effect of tail-skids could be utilized. While the field is well soft enough to provide the landing surface desired, there is little or no skid. The material which was previously taken up by the tail-skids and threw away by the propeller wash new dirt back onto the surface. The engine heat proves very popular with the skid and spotting take-offs. The oil used as this field was a road of having an asphalt content of from 40 to 70 per cent. The Los Angeles (Oilstar) Airport was given similar treatment about the same time. In this instance, however, the field was not dredged after paving.

The landing field now being prepared on Terminal Island, Wilshire, Calif., has edged runways. The wash was done

SIDE SLIPS

By ROBERT H. OSBORN

In the vicinity of New York and New Jersey there have developed, in the last year or so, quite a large group of newspaper men who have become specialists in avionics and aviation. As their data's all have accumulated experience by time, rolling over this segment some of them still at the beginning are pretty bad and there are always a few knockouts to help us through the sometimes growing spate of the columnists. Lately, though, the Society of the Aeronautical Engineers of America and Newspaper Correspondents seem to have brought out some real improvement in their writings and we can read through many of them without shuddering. Still, it is a record of the staff as it were. So, as this space is prepared with running each week if we are to have the "Dawn" Young from the "Daily News" and the like, we are going to allow the problems of the press to do our weekly share for us in another way. All of this, then, they have been running around to the various fields getting interviews from prominent aeronauts passing on the subject of aviation, so we thought it would be an excellent idea to print these various viewpoints on the same subject, wherein the following questions we believe to actually represent those views on the subject, let us turn to them to read my that the questions were obtained only from frequent contact with them and that they did not realize they were speaking for publication.

McLean of The New York American: "What started this game anyway? Anybody who says this is the regular way to play Black Jack must have been in a different Army than I was."

L. D. Lyons of The New York Times: "How, then, does the game start? One of the first things the old New England fishermen who were setting the hook spreading nets (fishermen of spreading herring huts to give the men New England fishermen a atmosphere to sleep). They say one of them, looking out to sea, 'Ha! they purrises out there, or (cough) he they?' 'Well, John (John),' says Bob, 'I don't know whether they be, or—whether they be!'

C. B. Ailes of The New York World: "Well, I made a trip in one of these ships once and if that isn't the dog-darnedest surprise I ever made in my life, it's almost as surprising as the Whoopee macaroni, and the worse time the Whoopee ship; I wouldn't even ten times the field to that."

E. D. Wilson of the New York Herald Tribune: "Gosh, he certainly had a lot here, didn't he? I suppose, though, he's able to swim most sort of a story out of it."

L. A. McGinnis of The New York Times: "Who is that fellow over there? What does he have, what do he eat it out, and how much of what do I tell you should I believe?"

J. A. Frazee of The Long Island News Service, A.P., New York Evening Post, Philadelphia Ledger, Boston Herald, and so on: "Who has an idea where something's going to happen next? I could never name."

George Kroll of The New York and Chicago Tribune: "Listen, operator, do you get that number in three digits? I'm going to try this phone can be the radio, radio-radio-radio—and furthermore, if there isn't 100 more speed shown on this line more in a while—hello-hello-hello."



Photo by J. A. Frazee

**Yes, All Metal
but the Tires**

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FOREIGN NEWS

By Special Correspondent with the Foreign Press Services
Service of Foreign and Domestic Commerce

Airport Planned for Milan, Italy

Milan, which is the Italian Peninsula's most important railway center, seems destined to become an postal airport from which the country's mounted air arm will conduct to all the Imperial cities, moreover the network of lines in operation, projected as contemplated. The plan of the Ministry will call for a port for seaplanes at Tolosa, and that of the Province of Milan for an artificial lake or port for seaplanes at Laveno di Lambrera, where two miles distant from the former, but connected by a speed road.

The port for seaplanes is being constructed on the site of the existing station at Tolosa, a distance of about three miles from the city of Milan, and the Ministry of Agriculture, which has already obtained the services of 14,000,000 lire. The various military hangars, located alongside of the Caproni company's plant, will be demolished and reconstructed in the new flying zone against the new achievement of the Milan-Bagnoli industry line.

Canada to Have Aircraft Show

Canada's first aircraft show will be held at the Canadian National Exhibition in Toronto this fall. The Canadian Air Force has been asked to collaborate and probably a number of planes will be sent to Toronto from Ottawa and Camp Borden. The Dominion Telegraphic Bureau will show how the work of mapping out the Dominion by aircraft was progressing and the Post Office Department may have an exhibit to indicate the progress being made in air mail delivery.

Sweden Has 100 Per Cent Safety Record

Since its formation in 1924, A.B. Aerotransport, which is government-subsidized, has handled the commercial transportation in Sweden, as well as the Swedish air connection with Europe countries. The company has shown 100 per cent safety during the years it has been in operation, no accidents having occurred that have led to injury of passengers or damage of goods transported.

In 1924-25 passengers were transported, in 12,244 flying hours. The company's records show a steady increase and in 1927 14,080 passengers were carried in 2,635 flying hours.

Netherlands-India Mail Route

It is the intention of the E.L.M. (Royal Air Navigation Co.) to send to the Indies during the summer of this year, four twin engined Fokkers, which are destined for the Netherlands Indies Air Service Co. Each will be carried on these flights, for which the postal service will conclude the K.L.M.'s service via Sumatra. The charge for letters in local and special air mail charge of 0.75 cents and 0.40 cents will be used.

London-Le Touquet Service Started

Air Service between London and Le Touquet, France, has been established by Imperial Airways, Ltd. The planes employed in the service are of the same type as those used in the London-Paris series of this company. Thirty pounds of baggage are carried free as each ticket sold. The regular service starts less than two hours, approximately 1½ hr. being the time.

New African Air Line Established

A new company to be known as the African Airways, Ltd., has been organized to establish an air service between Durban and Johannesburg carrying passengers, mails and freight. Subsidary lines are to be opened between Durban and Bloemfontein and between Durban and St. John's. Gouvernement, government-owned.

It is proposed to maintain a daily service between Durban and Johannesburg with a fleet of six Bristol "B.R." planes, fitted with 400 h.p. Bristol "Jupiter" engines and three "Mack" planes fitted with 300 h.p. "Salmson" engines. The time required will be from three to five hours, saving approximately 17 hr. over the railway.

Dornier Building Giant Plane

A giant airplane hangar constructed by the Dornierwerke is nearing completion and it will probably leave the yard at Altenrhein on the Swiss side of the Lake of Constance this summer to undergo its trial flights. The plane will be known as type "Do 35," and it is estimated to resemble the American Boeing bomber in general outline and form of the latter in every respect. It will be equipped with 18 engines arranged in pairs on the main wings so as to mount four radial engines at the rear as a tractor and the other eight as driving propellers. The total strength of the engines will be about 5,900 h.p.

That plane is especially constructed for a regular transoceanic air service and the fuselage has been built to able to withstand the heavy waves of the Atlantic. The plane has accommodations for 20-30 passengers, as well as carrying cargo to considerable freight and mail.

Dublin Hosts German Flyers

A state welcome was given the trans-Atlantic team, May 30, from Philadelphia, Capt. Horace Root and Dennis Van Hoosier, July 4, to Dublin in recognition with the last celebration of American Independence Day in that country. The team was composed of President Georges and other members of the Government, including Gen. Gen. Gen. James McNeil at Van-Hang Ledge.

All three visitors attended the grand party at the American Legion of Phoenix Park given by United States Minister Frederick A. Herling. Among their guests were Governor General and Mrs. McNeill, President and Mrs. Coughlin, and representatives of all classes, professional and commercial Ireland.

Canada Orders Three New DH Planes

Three Canadas ordered for the new DH.4, liaison bats been placed and delivery of the first has been made to British Airs, where it will be used to forest ridding and other work by the Ontario Government. The second plane will be delivered to London, Ont., to be used in oil and timber, and the third to Montreal. This type of plane is reported to have a ton of pay load and will climb to a height of 5,000 ft. in 6½ min after taking off. The aircraft costing is \$5,000.

New Australian Seaplane Service

A new seaplane commercial service for Australia has been proposed between Sydney and Newcastle, a distance of 30 mi. Both routes are on the sea coast, and using flying boats of British manufacture, it is expected to cover the distance in 40 min., as compared with three hours by rail. It is proposed to make two trips a day from each end, the planes being capable of carrying 15 passengers and 300 lb. of parcels. The fare will be slightly more than the railway fare. Under the proposed arrangement 300 passengers and 3,000 lb. of freight can be handled daily.

RADIO EQUIPMENT FOR AIRPLANES and AIRPORTS

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AIRPORTS AND AIRWAYS

Portland, Ore.
By John W. Anderson

White station, granddaughters and great grandchildren looked on. Mr. D. W. Barnes climbed into a Rose-color monoplane at the Commercial Airfield here to make his first flight. The enthusiastic spectators of his momentary heroism, Lord Gifford E. Morrissey, who gallantly rescued the company, operated the plane and when it landed, he bowed to Mrs. Morrissey and said he was "mighty glad done." The flight was the big event of a reunion of the Morrissey family.

Air mail schedules from the Northwest to Oakland, Calif., will be shortened by dropping a special Goldband train at the Oakland airport, local Pacific Air Transport officials have announced. Goldband mail cars will run to San Francisco first and then be freed east.

The Boston Flying Service of Portland just received delivery of a carload of Iva Ware planes at Spokane, Wash. Three of these were sold to Mark Mason, Spokane dealer, and the others were ferried to Portland. The three will be used here during the total Western tour now January 1 to 25, according to J. Kegginson, general manager of the company. At least 200 more could have been sold if they had been available. The company expects to double its sales before next January. Last winter total sales amounted to less than \$40,000. All the ships were bought the way in Oregon, Washington or Idaho.

Five schools have signed up to use the Gladstone method of flying instruction which is being syndicated for general use in a rapidly basis. The schools are: Commercial Air Transport, Everett, Wash.; Commercial Air Lines, Inc., Seattle; Tucson Airways, Tucson, Ariz.; Gray Harbor Airways, Albermarle, Wash., and a new school being organized at Eugene, Ore.

Mr. Kegginson plans to go to California soon to inspect the service to several schools. Over 200 requests for information regarding the instruction method have been received.

A spare Wright Whirlwind motor, to be used in either of the two Ryan cabin monoplanes now in regular passenger service between Portland and Yakima, Wash., has been received by the Rainier Company.

10000 Vista Circus

Silverton, Ore., a city of about 3,000 population, drew about 10,000 persons to see the second annual air circus at Silverton Airport sponsored by Robert Brown Pat, American Legion Post No. 12, and the city. The show was on for the second time direction of Capt. U. T. Tracy.

The program began with a nonstop victory from the Portland Airport to Silverton which was won by A. B. MacLellan in an American biplane. He was awarded the J. C. Penney trophy. A special trophy was given to Dick Strode, the only competitor with a "spared up" OX 5 powered plane, a Waco. Second place in the regular competition went to Floyd Knobell of Portland flying an Englishman belonging to Mr. M. R. of Portland. G. C. Gossel, Portland, was third in a Waco Seven plane entered.

The top contest, with a special trophy as first prize, was won by Knott. Walter E. Goss, Portland, in an American biplane, was second; Bob Berney, Portland, Englishman, third; and Mr. Keenan, Portland, Waco, fourth.

One of the most exciting events of the day was the dust

dash landing contest in which MacLellan managed to stop his plane within three feet of the fire engine of his competitor at 1300 ft. Louis Goldsmith, Portland, landed his American biplane the second place. Other contestants were disqualified for ground looping.

Third placed Iva Ware for her first plane in the 16 mi. free-fall for OX 5 standard model planes, making the course in 7 min and 22 sec. Knott was second and Beverly W. Clark, Portland, Travel Air, was third.

Fourth place went to Dick Strode, a Canadian, Waco, fourth. Jack Schaeffer, Portland, and Fred Stover, Silverton, Ore., made complete passes. Johnny West, Portland, maintained a wing-walking exhibition.

For his assistance in staging the meet, and as a tribute to his ability as a flier, Capt. Anthony L. Ragle, commander of Phoenix Field, Vancouver, Wash., was given a silver cup.

Silverton supplied visiting fans with their gas, oil, food and lodgings.

Salt Lake City, Utah

By E. E. Hale

Good mail runs have been made in the last few days over the Great Salt Lake air and land line in connection with the formal and official opening of this new 200 mi. line August 1. The National Parks Airways, Inc., operator of the bus and monoplane, a complete equipment for the opening consists of four air passenger, experimental, biplanes, of special design as to passenger cabin and pilot's quarters. The goods flights were made June 30, one leaving here last evening. The plane is the golden experimental purchased

earlier by Frank L. Bryant as part of his American expansion and was made available in the National Parks Airways by the Atlanta Aircraft Corporation for the initial goods flights. The plane was flown here by G. E. Marlow, test salesman Alfred Frank, president and general manager of the National Parks Airways, was a guest on the plane today Hester Field.

On the second ground flight, Mr. Frank directed the party, accompanied by Fred Seale, manager of operations and Ray Elkins, one of the five regular pilots. Elkins was at the controls. The plane made stops at all the cities on the route and Mr. Frank reports rapidly increasing interest at all points on the opening.

The south-bound goodby flight was made with a Ryan four passenger plane engaged for the event from the Thompson Flying Service, with Tommie Thompson, veteran racing monoplane pilot in charge. This plane went to Great Falls recently and flew back over the route west day. The time was 1 hr 20 min for the Ryan and 4 hr 22 min. for the Packer.

Salt Lake dedicated its new airport lighting system installed by the city, this being a municipal airport. There's a running marshalled the event with an estimated crowd of 30,000 on hand. The top run is to be the best source for lights with search, instant starting, powerful revolving and flood lights. Using sand and pilot flying the night route from here to Cheyenne very satisfactorily demonstrated in several take-offs and landings they had the road in sight to cover over the expanse of light, making oil required small. Henry Bouman, one of the first night fliers for the government, four years ago

said the lights were needed behind the ship for the demonstration.

The ceremony took on the aspect of a speech-making session, with an example, C. Clarence Nelson, the present mayor, John F. Donnan and Alex F. Heaton, members of numerous air service organizations as the stellar roles. An impressive program was put on by one of the "famous" on the bill added to the circumstantial events of the occasion.

Salt Lake Airport can boast a fully adequate equipment. The entire field has been made smooth for landing and take-off and the main entrance has been fitted to a heavy steel arch, effectively closing the field.

The field has four miles east of the city—about a dozen miles with the state capital building which sits on a high hill at the northern edge of the city. The field is in North Temple, and four miles west of the famous Mormon Tabernacle and temple.

Salt Lake City, Utah

By Robert Shookman

Owing to inability of facilities to deliver planes the regular opening of the National Parks Airways, Inc., will not occur until August 1. Graciously rescheduled to open June 30, Earl P. Widmark, superintendent of air mail, recently in Salt Lake to confer with air mail operators, indicated the regular service opening date, but demanded that two planes by the Salt Lake City-Great Falls Army on June 30. This was done, but no mail was carried.

On August 1 according to Robert Shookman, manager of operations of the National Parks Airways, Inc., regular mail service will begin using four Fokker improvements of the ten passenger type.

Mr. Widmark was in Salt Lake City to see the new delivery and efficient of Bureau Air Transport, flying the mail from Cheyenne, Dakotas to Phoenix Airport. Also with Mr. T. V. Verner, manager of the Bureau Air Transport carrying the mail from Salt Lake City through Vernal to Price, Utah. Local representatives of the Western Mail Express informed me that Widmark conditions with Mr. Widmark also. The Widmark flies the mail to Los Angeles with a refueling stop at Las Vegas, Nev.

The new Fokker cabin-passenger plane of a really acceptable flying machine, as does at the Salt Lake City Air port recently, having been piloted from Pasco, L. L. S., by H. E. Collins.

This new company, the Western Aircraft Distributors, Inc., is headed by Elmer Brown, Dennis G. and Collins, Jack Skarupski and Murphy, Bonanza, Bureau Air Transport planes are interested in the new organization.

The Western Aircraft Distributors, Inc., have built a large hangar on the north side of the E.W. carrier. This same hangar recently housed the Western Air refueling plane, which is to be used in aerial surveys.

The flying of the N.B. carrier its full length and in front of hangars will not alone provide a better landing and take-off surface, but will settle the dust. The flying is being done under supervision of Harry L. French, Salt Lake City Commissioner. This is the first of a number of repeat experiments tested several months ago by the new commission.

Lincoln, Neb.

By George Price

The purchase of a site for the Lincoln Municipal Airport probably will be made within a few weeks. Four levels will be selected in the city, each consisting at least 150 acres and water accommodation. All are held under option.

Each of these have been reported to Walter C. Beeler, airport operator under the direction of the previous interests



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The author has published many books on aviation subjects, including "How to Fly," "How to Buy an Airplane," "All the Airplane You Want to Know About," "How to Buy a New Airplane," "How to Buy a Used Airplane," "How to Fly Safely," "How to Fly Safely in Wind," etc. Price, \$10.00.

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THURSDAY, JULY 13, 1938

Yuma, Ariz.

Personnel gas trials were initiated on Fly Field in time for the Fourth National Air Show during the last four days.

The field near here is very small and considerable difficulties with the wind, "Tensil" pointed on both sides of the road in large enough letters to be seen several thousand feet in the air. The white circle in the center of the 150 square miles almost obscured and located is visible even here at the maximum end of the site.

Lt. Tevis is on the field day and night, ready and anxious to do as many flights as possible but visiting them and their passengers.

At the present time, here have been G. B. Chapman of Tucson in his Travel Air, and Dudley M. Steele of Los Angeles, traveling in the interest of the National Air Races, scheduled for next September, the last lap of which will start from Yuma.

Decatur, Ga.

Early in the spring the personnel here of Decatur started to work on a sewage field and now after the results have been tested again, Decatur has an airport. Decatur is the only city in northeastern Texas with an airport and according the fact that most of this section is quite rough, the many roads through small villages this field.

It is located three miles south of Decatur and is located in a 500 acre area, 400 ft. above sea level. It is connected with Decatur via a big 12 ft. bridge, with a cross positive towards the field.

As yet there is no longer on the field hot gas and oil are available in a few minutes' notice. There is a plane just

across the road and top of the oil companies are only too willing to accommodate any day with oil, gas, and water. The field is irregular in shape and affords fine way take off and landing.

Moline, Ill.

In the June 26 issue of *Aeronautics* mention was made of the first Transoceanic flight turned out by the Webster company, and sold in a \$1.00 comic book. The second plane was sold to E. K. Campbell of the Midway Airport. It is still in use, and apparently as serviceable as ever.

When the Wisconsin Air Team stopped at the Midway Airport, the Fobots Airline furnished the Dutch refreshments for the passengers at the Leichner Hotel. It was a long time since we had anything so good in such generous quantities. The bags at generally expected that the same would still come back with the same goods next year.

The Campbell-Dobbs Airplane Co handles the Mosquito for the states of Iowa and Illinois, and will soon handle that for the territory and parts of Indiana. The steady Mosquitos planes in flight stand by leaps and bounds. In short, it is flying. It performs well and it flies well, taking the air bags a whole lot more gently than the big bi-planes.

The Campbell-Dobbs Company also has the agency for the Transoceanic and the Frenchish planes. Both have been selling extremely well. Next month the company will take delivery of its first West Winged Pintail.

The manager of the Illinois State Air Tour during the Midway Airport the day he had visited on their own account the result. Many a visiting tourist has made the same remark. The field is indeed truly carpeted, and the approaches are all that could be desired.

Besides the four field planes, day, on average of 40 planes a week are landing in the Yuma Airport from outside points. Some 20 planes are owned in the field itself, and limited equipment can be purchased, and limited markings are essentially at attendance.

The U. S. Weather Bureau has two observers on duty at the Midway Airport. The equipment at their disposal will soon be largely increased. A radio station will soon be built with an operator there is abundance.

The Midway Airport is one of the few in the country altogether under private management, and it is doing wonderfully well. Certainly none has been more aggressive or more progressive. Which raises the question whether numbered ownership is the way and only answer for success?

Fort Wayne, Ind.

By William H. Stiles

Four young men made their first solo flights at the Paul B. Mantorp Airport on the same day recently. The day marked the first commencement for two local schools of aviation.

William Hall, son of Arthur Hall, president of the Lee Auto Service Life Insurance Co. and prominent industrialist, of this city, and George Carlisle, Jr., of Detroit, Mich., made their initial solo flights after a series of instruction at the Arrow Flying School. Both youths are students of aeronautical engineering at the University of Michigan. They enjoyed flying during vacation vacation.

Henry Franklin, Jr., of this city and Raymond Kramer of Winona, Ill., made solo flights after studying under instructors of the Wayne Flying Association. They plan to return to advanced courses.

The Fort Wayne Flying Club announces the following special routes of Southwest Airport. Pilot U. S. Mail will carry passengers or loads and from Macomb, Ill., Pilot Kit Gar-



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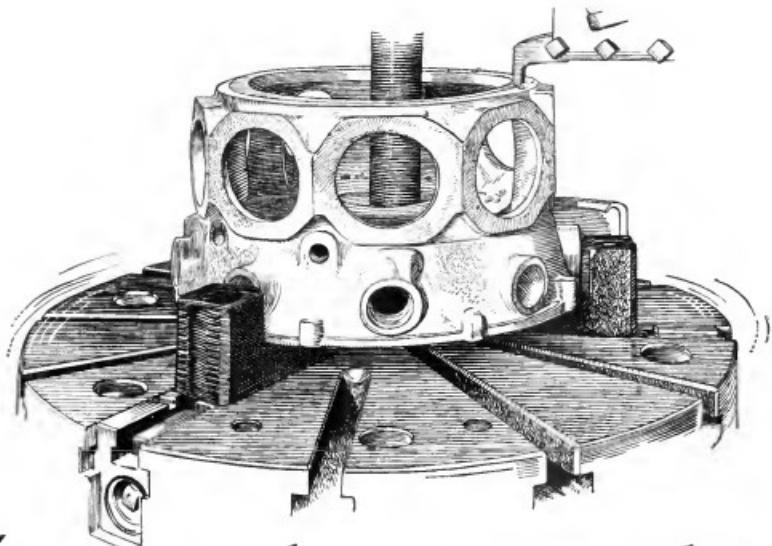
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THURSDAY, JULY 13, 1938



Two weeks to machine a crankcase section~

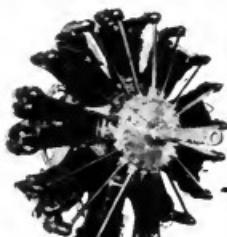
ALUMINUM, known for the tricks it plays in a process, is most sensitive to the treatment of cutting tools; yet most essential to the lightness of a fine aircraft engine. It strains against its moulded shapes; it swells from heat generated in machining. One section will warp in protest at the treatment given another.

Two weeks go by before a crankcase casting is fully machined ready to be assembled in an engine. Two weeks—time not necessary for machining alone but time which Wright machinists know should be allowed for readjustment of the metal between successive operations. These men know their metal—know its peculiarities of stress and strain—its tendency to warp and

run out of shape under the heat generated by cutting tools. Each man knows how much heat the part he makes will stand before expanding—knows how much heat each cut involves—knows when to stop before warping begins. He will machine one part; then jump to another. He knows when a casting needs a "rest", and sets it aside for two days, or even three, before machining again.

By such careful procedure, Wright Crankcases are brought into shape without strain; machined thinner and lighter with no sacrifice of strength; worked slowly to the point where the finished piece is worthy of being called the "finest aluminum casting made."

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